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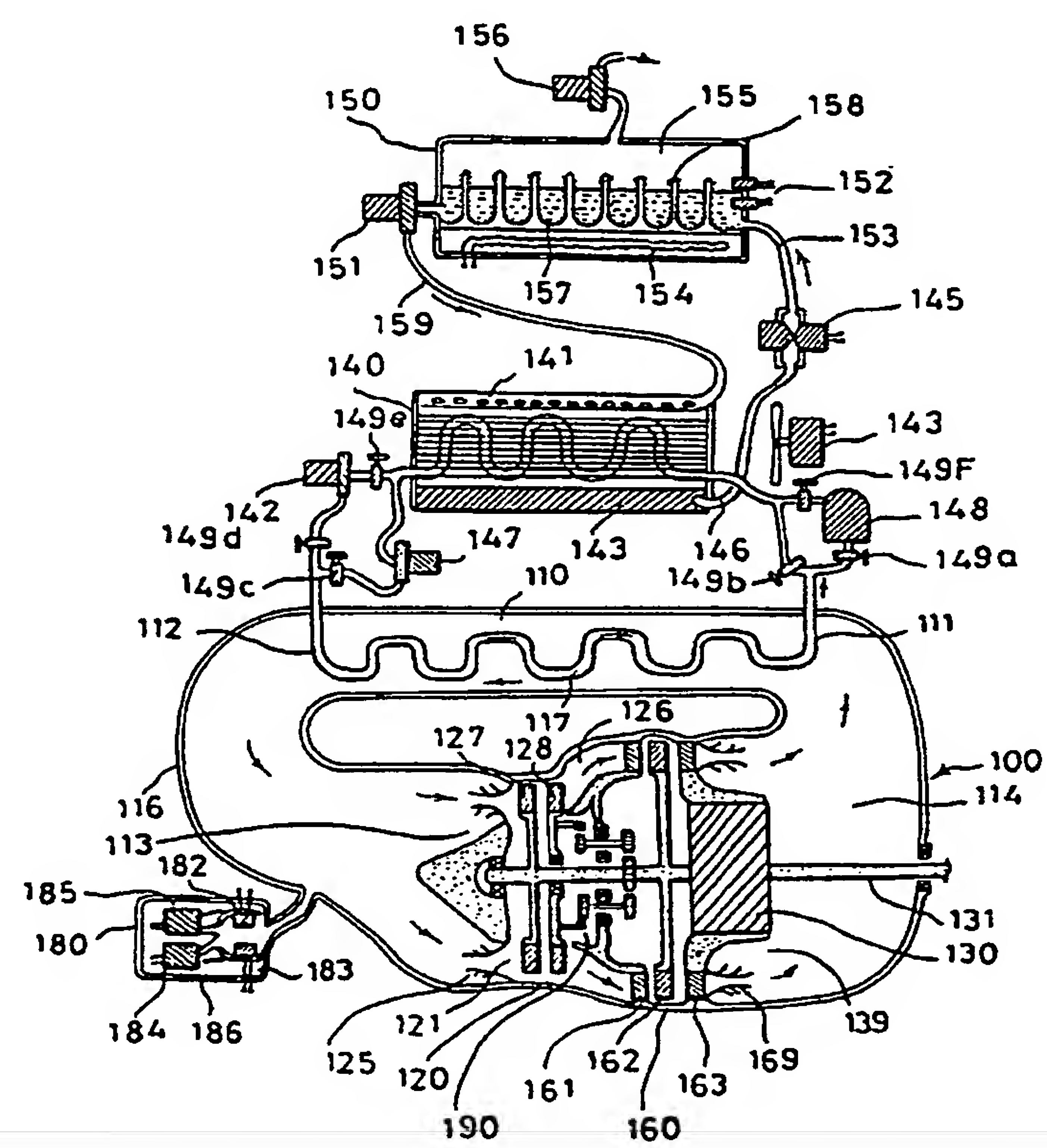
(54) Title: A SYSTEM FOR GENERATING POWER, PROPULSIVE FORCE AND LIFT BY USE OF FLUID

(57) Abstract

The present invention relates to a power, propulsive force and lift generating system wherein the power is obtained by use of the compressibility and expansibility of the fluid passing through flowing tubes (116, 125, 169) of a power generating system (100) including an electric motor and generator (130), compression means (160), a turbine (120) and a heat exchanger (110) transferring heat to the fluid. According to this invention, after the first drive of the power generating system (100) by an external electric power supply, self-generated power keeps driving the system spontaneously. Though an external electric power supply is suspended at a stationary state, the extra self-generated power produces lift or propulsive force. Therefore this invention provides a system operating safely irrelevant to any atmospheric phenomena or external environment, reducing public nuisances resulted from the waste gas of fuel.



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A system for generating power, propulsive force and lift by use of fluid

Field of the Invention

The present invention relates to a power, propulsive force and lift generating system wherein the power is obtained by use of the compressibility and expansibility of the fluid passing through flow tubes, and the power, of which the energy is also obtained from external fluid in normal temperature is utilized to generate lift and propulsive force without being influenced by the exterior of the body of an aeroplane, a car or a ship, etc.

Description of the Prior Art

A power generating system presently used to propel an aeroplane, a car or a ship is operated by the power which have generated in the course of a combustion of an oil fuel.

For example, an aeroplane is propelled by the rotation of a jet engine and lifted upward by the lift utilizing the curve of wings.

A car and a ship are driven by a power transfer means operated by the rotation of an engine.

The above-described power generating system resulted in the consumption of large amount of energy, and the structural complexity of the system which causes a frequent breakdown and a rise in the manufacture cost as well as air pollution.

The aeroplane is propelled and lifted by the rotation and

curved configuration of the wings which directly contact the air, or by the power generated in the course of combustion of an internal oil fuel. Therefore, the propulsion and the lift of the aeroplane or helicopter are influenced by such weather conditions as irregular air current or air density, to cause the abnormal phenomenon, suspension of the operation or sudden accident, as an alien substance like dust in the atmosphere passes through wings and an entrance

Brief Summary of the Invention

The object of the invention is to obtain power from the fluid energy in normal temperature with a little use or without use of fuel.

Another object of the invention is to provide an efficient power generating system with a simple construction.

A further object of the invention is to provide a system wherein flow of the fluid in an airtight compartment generates a propulsive force and a lift irrelevant to any external environment.

A further object of the invention is to reduce public nuisances resulted from the comsumption of fuel.

The invention will be described and explained in more detail with reference to the accompanying drawings and the illustrated examples of embodiments.

Brief Description of the Drawings

Fig.1 is a schematic view of a power generating system of

the present invention.

Fig.2 shows angles of a turbine wing and a compression wing in operation in Fig.1.

Fig.3 shows installation angles of the turbine wings(127,128) and the compression wing(162) in Fig.1.

Fig.4 is a perspective view of flowing tubes(125,169) which change fluid velocity efficiently, arranged at an inlet of a turbine(121) and an outlet of a compression means.

Fig.5 shows a second embodiment of Fig.4.

Fig.6 shows a third embodiment of Fig.4.

Fig.7 shows a fourth embodiment of Fig.4.

Fig.8 is a top plane view of a evaporation means(150) in operation in Fig.1.

Fig.9 shows a second embodiment of the power generating system of this invention.

Fig.10 shows angles of the turbine wing and the compression wing in operation in Fig.9.

Fig.11 shows installation angles of the wings in fluid energy enlarging means(170) in operation in Fig.9.

Fig.12 is a view showing another embodiment of the turbine(120) in Fig.1 and Fig.9.

Fig.13 is a sectional view of wings of Fig.12.

Fig.14 is a view showing a third embodiment of the power generating system of this invention.

Fig.15 is a view showing a fourth embodiment of the power generating system of this invention.

Fig.16 is a view showing a second embodiment of the

compression means(160) in the power generating system of this invention.

Fig.17 shows a sectional view and an operation state of the wings in Fig.16.

Fig.18 is a view showing a first embodiment of the heat exchanger(110) in Fig.1.

Fig.19 is a view showing a second embodiment of the heat exchanger(110) in Fig.1.

Fig.20 is a view showing a third embodiment of the compression means(160) in the power generating system of this invention.

Fig.21 is a view showing a fourth embodiment of the compression means(160) in the power generating system of this invention.

Fig.22 shows structure in operation of a piston side face(16) and a cylinder side face(15) arranged at an inlet and and outlet in Fig.20.

Fig.23 is an enlarged sectional view of a portion in Fig.22.

Fig.24 is an enlarged sectional view of another portion in Fig.22.

Fig.25 is a side sectional view of the piston side face(16) and the cylinder side face(15) in Fig.21.

Fig.26 is a perspective view of the piston(10) in Fig.21.

Fig.27 is a view showing a fifth embodiment of the compression means(160) in Fig.20.

Fig.28 is a view showing a sixth embodiment of the

compression means(160) in Fig.20.

Fig.29 is view showing a seventh embodiment of the compression means(160) in Fig.20.

Fig.30 shows structure of the outlet valve and guide wing(24) in Fig.29.

Fig.31 is a view showing a eighth embodiment of the compression means(160) in Fig.20.

Fig.32 is a schematic view of a propulsion system of this invention.

Fig.33 shows a second embodiment of the propulsion system in Fig.32.

Fig.34 shows a third embodiment of the propulsion system in Fig.32.

Fig.35 shows a fourth embodiment of the propulsion system in Fig.32.

Fig.36 shows a fifth embodiment of the propulsion system in Fig.32.

Fig.37 is a top sectional view of the lift generating means(333,334) and the flowing apertures(336) in Fig.32.

Fig.38 is an enlarged perspective view of a portion in Fig.37.

Fig.39 is a perspective view of supports(337) arranged in compartments located at the opposite sides of a separation wall(333) and the apertures(336) as the lift generating means.

Fig.40 is an enlarged sectional view of the separation wall(333) and the apertures(336) as the lift generating means.

Fig.41 shows a second embodiment of the lift generating

means(333,334) in Fig.32.

Fig.42 shows a third embodiment of the lift generating means(333,334) in Fig.32.

Fig.43 shows a second embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig.32.

FIg.44 shows a third embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig.32.

Fig.45 shows structure of the aperture(336) in Fig.44.

Fig.46 shows structure of the aperture(336) in Fig.44.

Fig.47 shows a fourth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig.32.

Fig.48 shows structure of the aperture(336) in Fig.47.

Fig.49 shows structure of the aperture(336) in Fig.47.

Fig.50 shows a fifth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig.32.

Fig.51 shows a sixth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig.32.

Fig.52 shows a seventh embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig.32.

Fig.53 shows structure of the aperture(336) in Fig.42.

Fig.54 shows a eighth embodiment of the aperture(336)

formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 55 shows a ninth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 56 shows a tenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 57 shows structure of the aperture(336) in Fig. 56.

Fig. 58 shows a eleventh embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 59 shows structure of the aperture(336) in Fig. 58.

Fig. 60 shows a fourth embodiment of the lift generating means(333, 334) in Fig. 32.

Fig. 61 shows a twelfth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 62 is a top plane view of Fig. 61.

Fig. 63 shows structure of a swirling groove(339) in Fig. 61.

Fig. 64 is a perspective view of Fig. 63.

Fig. 65 shows a second embodiment of the swirling groove(339) in Fig. 61.

Fig. 66 is a perspective view of Fig. 65.

Fig. 67 shows a thirteenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means

in Fig. 32.

Fig. 68 shows a fourteenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 69 shows a fifteenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 70 shows a sixteenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 71 shows a seventeenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 72 shows a eighteenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 73 shows nineteenth embodiment of the aperture(336) formed in the separation wall(333) of the lift generating means in Fig. 32.

Fig. 74 is a sectional perspective view of a portion(341) in Fig. 73.

Fig. 75 is a sectional perspective view of a portion(342) in Fig. 73.

Fig. 76 shows a sectional view of the wings and structure of the flow channel in fluid energy enlarging means(352, 353) additionally arranged at the compression means(320) in Fig. 35.

Fig. 77 shows a sixth embodiment of the propulsion

system(300) of the present invention.

Detailed Description of the Preferred Embodiments

The present invention comprises a power generating system(100) and a propulsion system(300).(shown in Fig.1 and Fig.32)

The power generating system(100) has an electric motor(130) and a compression means(160) which produces removing force from one to the other side by the rotational force obtained by the electric motor(130). By the compression means(160) the pressure in a fluid increases as the fluid in the enclosed flow channel(114) moves to the rear of the compression means(139), and the fluid velocity increases as the fluid rotates the turbine wing in the head(127) through the connected flowing tube, and decreases as the turbine wing in the end(128) is rotated. The fluid enters the compression means(160) again, the resulted circulating system makes the work done to the turbine(120) by the fluid larger than the work done to fluid by the compression means(160), and the power generating system(100) obtains an electric power from the electric motor and generator(130) arranged at the rotational axis(131) of a turbine.

An electric motor(310) is driven by the electric power from the generator(130) or by the power from said power generating system(100).

A second compression means(320) arranged at its rotational axis(311) removes and compresses fluid. There are separation

walls(333) to divide the flow channel into many compartments between a higher-pressured compartment(331) to which the fluid discharges from the compression means(320) and a lower-pressured compartment(332) from which the fluid enters the compression means(320). Fluid flows through small apertures(336) in the separation wall(333), and the fluid disperses in the course of flowing from the higher-pressured compartment(331) through the separation walls(333) and the compartments(334) to the lower-pressured compartment(332), which results in the decrease of a fluid velocity and a downward pressure. As a result, the propulsion system(300) generates upward propulsive force and lift.

When the internal fluid circulates in the power generating system(100), the density of fluid particles in the higher-pressured compartment(113) in front of the turbine(120) is lower than that in the rear of the compression means(139), due to the structural characteristics of the turbine rotational wings(127,128), guide wing(161), and the flow channel. That is, the fluid does work to the turbine(120) and at the same time increases the energy in flowing the channel among turbine wings, which results in that the work done to the turbine(120) is larger than the work done by the compression means(160), therefore the extra power drives the electric motor and generator(130) to generate electric power.

Fig.1 shows a first embodiment of the power generating system(100) of this invention. The power generating system(100) has a flowing tube(116), a generator and electric

motor(130), a compression means(160), guide wings(161,163) and the other flowing tubes(125,169). The flowing tube(116) is on the whole enclosed and full of fluid. The guide wings(161,163) modify the flow direction and change the flowing area. In the other flowing tubes(125,169) change the pressure and velocity of fluid efficiently. Also the fluid coming out from the compression means(160) obtains heat by an external supply through the heat exchanger(110), and then removes to and enters again the turbine(120).

The electric motor(130) rotates the compression means(160) using an electrical energy by an external electric power supply at the first drive.

The compression means(160) is an axial-flow type with radially the short straight wings(162) having a large turning radius, and the tail of the rotational wing(162a) thin. A slight slant in the angle of the wings arranges the guide wing(161) in front of the rotational wing(162) to make the fluid entering parallel to the rotational wing(162).

A slight slant of the rotational wing toward the circumference(162e in Fig.3) reduces the centrifugal force of the rotating fluid and diminishes a variation of fluid pressure through the flow channel of the rotational wings(162). The guide wing(163) raises the pressure of the fluid coming out from the rotational wing(162).

The fluid velocity increases a little in the flowing tube(125) in front of the turbine rotational wings(127,128), and increases in the flow channel among the turbine wings in

the head(127) of which the structure is similar to that of an ordinary reaction turbine wings, resulting in the rotation of the turbine wing(127). The velocity decreases as the fluid in high velocity rotates the turbine wing in the tail(128) of which the structure is the reverse of that of the turbine wing in the head(127). Then the fluid, by the guide wing(161), changes the direction parallel to the rotational wing(162) and enters the rotational wing(162) of the compression means.

The density of the fluid changes a little in the turbine(120) in which the fluid is expanded and compressed again, and increases greatly in the compression means(160) in which the fluid is compressed. Therefore, the work the fluid does to the turbine(120) is larger than that the compression means(160) does to fluid, which results in that the fluid after the compression means(160) is lower in temperature than that before the turbine(120), and the fluid is heated passing through the radiating tube(117) of the radiator which supplies heat from the external fluid and circulates to enter the turbine(120) again. After the first drive of the electric motor and gcnerator(130) by an external electric power supply, the self-generated power by the turbine(120) drives the system spontaneously. Though an external power supply is suspended at a stationary state the extra self-generated power keeps driving the electric motor and generator(130).

The above turbine wings(127,128) may be in the singular and in multiple forms as well to get large power in which, as in Fig.12 and Fig.13, a number of rotational

wings(127a, 127b, ...)are arranged in a series and guide wings(129a, 129b, 129c) between rotational wings. In the latter the fluid velocity increases repeatedly among the rotational wings(127a, b, c) and decreases among the guide wings(129a, b, c). In the drawings they are shown in a triple, however they may be in more complicated forms. It is also possible to be the reverse, i.e., the rotational wing changes to the guide wing and the guide wing the rotational wing, or the above guide wings(129a, b, c) are connected one another to become rotational wings to rotate in the opposite direction. In the latter the guide wings(129a, b, c) may transfer the power to the rotational axis(131a) through teeth and the like as rotational wings rotating in oppsite direction with one another. The compression means(160) may be also in the multiple forms to increase its compressibility.

A slight slant of the turbine rotational wings(127, 128) toward the circumference(127e in Fig. 3) reduces the centrifugal force.

In higher-pressured compartments(113, 114) a large flowing sectional area, a slow fluid velocity, and a short and a little curved flow channel are preferable.

Since the turbine wings(127, 128) rotate in the opposite direction with each other, the teeth(190) is installed to transfer power to the same rotational axis, and the rotational velocity depends on the size of the teeth.

The turbine(120) and the compression means(160) may have different structures, especially the turbine may utilize many

kinds of ordinary hydraulic turbines(power generating means using water). For example, the turbine wing in the end(128) utilizes the hydraulic turbine which rotates the rotational wing as the fluid velocity decreases.

The flowing tubes(125,169) in front the turbine wing in the head(127) and in the rear of the guide wing(163) in Fig.1 have, as shown in Fig.4, a connected structure of many pieces of wing which serve as guide wings. While the fluid draws off and turns between the pieces of wing(169a,169b,...), the flowing area increases, the fluid velocity decreases and the pressure increases. Their structure is similar to that of the turbine rotational wing in the end(128). The flowing tube(125) has structure opposite of the above flowing tube(169) to efficiently increase the fluid velocity.

The pieces of the wing is curved with the head(a in Fig.5) being almost parallel to the direction of fluid and with the head and tail(a,b) being thin to reduce friction with the fluid. The structure in Fig.6 and Fig.7 is also possible. In Fig.7, a tube(169) has a structure with the fluid flowing from the narrower to the broader side.

An electric motor and a generator may be separately mounted on the same rotational axis, however, since an electric motor is necessary only at the first drive it is preferable to use an electric motor and generator.

Therefore, at the first stage the system of this invention is drived by an external current supply and at a stationary state it utilizes a self-generated electric power without an

external electric power supply.

Since the fluid drawn off from the compression means(160) is lower in temperature than that before the turbine(120), continuous circulation lowers the fluid temperature still more to the breakdown of the system. By reason of this, the fluid absorbs heat in passing by the radiating tube(117) of a radiator, and the endothermic part(140) absorbs heat from the external fluid, e.g. external air passing through a ventilator(143) and sends the heat to the radiating tube(117). The above construction is the opposite of ordinary air conditioner, and generally uses air-cooling heat exchanger.

The fluid in the tube of the endothermic part(140) must be colder than the external fluid(air) to absorb heat. When it is cold outside the vapor in the external fluid(air) is cooled and frozen on the endothermic part to make its operation impossible. In this case it is desirable to mix an antifreezing solution with the vapor in the air and to pass the mixed solution by the exterior of the endothermic tube. When the concentration of the antifreezing solution into the evaporation means(150) with a vacuum pump(156) and to heat the solution by the heating part(154), and at the same time to evaporate it in low pressure by the vacuum pump(156). The above circulation system with the concentration of an antifreezing solution being normal is useful especially in cold season. The inside of the evaporation means has construction as in Fig.8 in which the fluid gradually evaporates in flowing. The wall(158) is arranged to make the pump(151) draw off the

fluid in high concentration, and its surface area is preferably wide to help transfer heat. The sand and cotton in the internal flow channel(157) is passed by fluid, and the capillary action of sand and cotton protruding on the surface accelerates the evaporation.

The defect of low efficiency of the above system in a low exteranal temperature is overcome by the coolant in the endothermic part(140), that is to say, the fluid with the coolant which is compressed(147), radiated(117) and then evaporated(148) like in a refrigerator makes the radiating part(117) in high temperature. A valve(149) and a low-pressured compressor(142) may be arranged in a row to alternatively be used in summer. The endothermic part(140) of the heat exchanger may be applied to an airconditioner or a refrigerator.

Instead of the radiating part(117) of the heat exchanger, the endothermic means of an ordinary air conditioner as in Fig. 18 may be utilized, in which external fluid(air, water and the like) passes through a fan, the fluid to the turbine(120) passes through the internal flowing tube(117), and external cooled fluid is utilized for cooling.

A boiler using ordinary fuel may replace the above heat exchanger. For example, through the internal flowing tube(117) passes burned gas or the fluid heated by burned gas. Fig. 19 shows another embodiment in which the endothermic means(264) as in Fig. 18 and the boiler(265) are arranged in a row, the valve(266) is opened or shut, and fluid is heated by the

combustion means(268) and the fan(267). Alternatively, external heat is absorbed through the indirect heating system and the boiler(265) is arranged in a row with the endothermic part(140) to heat the fluid in the event that the external temperature is too low or it is impossible to use external heat.

The close-circuit power generating system(100) need maintain normal pressure since the internal pressure changes as the temperature of the interanal fluid gets high or low, to change the generated power in operation and the efficiency. Therfore, the fluid storage tank(180) is arranged connected with the internal fluid, and the pressure sensors(182.183) which detect the change of pressure are arranged to operate the compression pump and valve(184.185), which results in the maintenance of normal pressure.

The mechanism by which the system comprising the turbine(120), the compression means(160), the electric motor(130), and the endothermic means(110) absorbs heat and keeps operating spontaneously to generate power is as follows.

The velocity of the fluid passing through the turbine rotational wings(127.128) increases, and its pressure decreases to expand where the flowing area gets narrower, which results in the decrease of the fluid density.

Work done by the fluid drives the turbine wing(127) to rotate, in consequence, has the fluid velocity decrease and the density increase. As the fluid velocity i.e., the velocity of its particles decreases, the temperature gets down and only the

density increases without an increase in pressure.

That is to say, doing work as the fluid expands through the turbine wing in the head(127), the fluid expands and also contracts, and through the turbine wing in the end(128) the fluid velocity decreases with the density increasing. Therefore, the fluid density before entering the turbine(120) is the same as that after passing through the turbine(120).

The fluid passes through the compression means(160) to increase the density and moves to the higher-pressured compartment(114), which results in that the fluid density after passing through the compression means(160) is higer than that before entering the turbine(120). This means that the work done by the fluid to the turbine is larger than the work done by the compression means to the fluid and the extra power self-generated may be utilized.

Fig.9 shows a second embodiment of the power generating system(100). In the rear of the turbine(120) the fluid energy enlarging means(170) is additionally arranged to have the fluid compressed by the rotational force, by which the fluid flows from the exterior to the centripetal direction, and thereby enlarge the fluid energy. The guide wing(171) adjusts the direction of the fluid to a slight slant from the center(shown in Fig.11). The fluid which is entered the centripetal center increases in pressure in turning, which direction is adjusted axially by the guide wing(172), and then in a decreased velocity the fluid turns toward the compression means(160).

Fig.14 shows a third embodiment of the power generating

system(100), which comprises the compression means(160) by which the fluid is removed to the enclosed flow channel, the turbine(120) which obtain power from the fluid, four heat exchangers(210, 220, 230, 240), the other compression means(200) which constitutes a separate flow circuit and remove cooling fluid, and the evaporation means(250) which liquifies and evaporates the coolant. The rotational axis of the above compression means(160) and the turbine(120) mutually exchange power by the teeth(191). On the drive of the two compression means(160, 200) by the electric motor and generator(130) which is driven by an external electric power supply, the fluid circulates through each circulation circuit.

On the drive of the turbine(120) by the fluid, the fluid at the outlet(126) of a turbine is lower in temperature than that at the inlet(121), and the cooled fluid moves to the first heat exchanger(220) to be more cooled by the fluid running in the internal flowing tube(221). After being compressed by the compression means(160), the fluid moves to a second heat exchanger(210) to be cooled by the fluid(the coolant) in the internal flowing tube(211).

Then the cooled fluid removed to a first heat exchanger(220) cools the fluid running in the external flowing tube(22) to be heated itself.

The fluid moves to a third heat exchanger(230) to be heated by the fluid running in the internal flowing tube(231). The fluid in the internal flowing tube(231), not shown in Fig. 14, obtains heat from the endothermic part(140 in Fig. 1)

which absorbs heat from the external fluid(air, water and the like).

After heated by the coolant in the internal flowing tube(241) of a fourth heat exchanger(240), the fluid enters the turbine(120) to generate power and recycles.

The coolant compressed by the compression means(200) moves to a fourth heat exchanger(240) and heats the fluid before the turbine(120) to be cooled itself. Then the fluid expands in the evaporation means(250), cools the fluid drawn off from the compression means(160) in a second heat exchanger(210), and enters the compression means(200) of the coolant to be recompressed.

The above route wherein the fluid, after drawn off from the turbine(120), exchanges heat with the circulating fluid running in the opposite direction relieves the compression means(160) of compressing and removing the fluid.

The flowing tube from the rear of the compression means(164) to the front(123) of the turbine(120) makes a higher-pressured compartment. The fluid velocity in the heat exchanger is to be properly adjusted. For example, the fluid running too slow may be mixed with a warm current or may be interfered by mutual heat exchange with the fluid. The flowing area is to be gradually enlarged and reduced, not abruptly, in order that the fluid runs smoothly without interruption, and a swirl from a curve and a friction with the internal of a tube reduces.

With the above-described construction, the power from the

turbine(120) simultaneously drives the compression means(160) and the compression means(200) in the coolant circulation.

After the first drive by an external power supply, on a stationary state the external power supply is suspended and the extra self-generated power keeps driving the electric motor(130).

Instead of the third heat exchanger(230) the endothermic means of an ordinary air conditioner as in Fig.18 may be utilized, in which external fluid passes through a fan and the condensed external fluid is utilized as a coolant. A boiler may also replace the heat exchanger as shown in Fig.19 in which the burned gas or the fluid heated by the burned gas passes throngh the internal flowing tube(231). Alternatively the burned gas in a boiler may pass through the external flowing tube(232) to heat the fluid.

Many kinds of ordinary turbines, water mills, and compression means may replace the turbine(120) and the compression means.

Fig.15 shows a fifth embodiment of the generating system in which the principle of operation is the same as in the third embodiment, the sequence of the heat exchanger however is different from each other.

The fluid which have passed through the turbine(120), in a first heat exchanger(290), exchanges heat with the fluid toward the turbine(120) in the internal flowing tube(291) to be cooled. After cooled more by the coolant in a second heat exchanger(280), the fluid enters the compression means (160) to

be compressed, and moves to the cooling part(270) of the cooling circuit for a third heat exchange.

Then the fluid runs through the interanal flowing tube(291) again to be heated, and is heated again by the radiating tube(191) of the cooling circuit in a fourth heat exchanger(190). In a fifth heat exchanger(260) which absorbs and supplies heat from an external fluid, the fluid is more heated to enter the turbine(120).

In this embodiment, the fluid is cooled by the first cooling part(281) of the cooling circiuit to enter the compression means(160), and after the compression means(160) the fluid cooled by the second cooling part(271) of the cooling circuit. The coolant of the cooling circuit cools the fluid before the compression means(160) after having evaporated in the evaporation means(250) and the fluid after the compression means(160), to be heated itself and entered the compression means(200).

In this embodiment a second heat exchanger(280) or a third may be left out, or reversed in sequence. The coolant in the cooling circuit may run through a third heat exchanger(270) and then a second(280), and enter the compression means(200).

A fourth and a fifth heat exchanger(190,260) may also be reversed in sequence. That is, the fluid exchanges heat with the external fluid in the flowing tube(261) in the fourth heat exchanger(190), and does with the fluid in the radiating tube(191) in the fifth heat exchanger(260).

An external fluid may pass outside the flowing tube

through which fluid runs, as in Fig.18, instead of the radiating tube(261), to be cooled while the internal fluid being heated. Also the endothermic means of Fig.18 may be arranged in a row with the boiler(265) in which, shown in Fig.19, the internal fluid runs through the internal flowing tube(265a) and is heated by the combustion means(268).

Alternatively, the fluid circuit with the endothermic means(140) and the evaporation means(150) of Fig.1 may be arranged in a row with the boiler(265) in Fig.19, where the internal fluid is directly passed through, alternatively indirectly heated.

Ordinary heat exchangers with different constructions may be used respectively or complexed.

Fig.16 and Fig.17 show a second embodiment of the compression means(160) wherein the centrifugal short straight wing(166) has a large turning radius, and the fluid enters centripetally at an inlet(as shown in Fig.11). The fluid whose direction is modified slightly slanted from the centripetal center by the guide wing(168), turns at the centripetal center, increases in pressure, decreases in velocity by the guide wing(165) at an inlet then enters straight the rotational wing(166). The compression means in Fig.16 has construction with a number of the above fluid evergy enlarging means on the same axis.

The above construction makes it possible to compress fluid more efficiently and in high pressure.

Fig.20 shows a third embodiment of the compression

means(160) in the power generating system(100). The reciprocating comprising the piston(10) and the cylinder(14) has the piston side face(16) and the cylinder side face(15), on which the pieces of wings(15,16 in Fig.22) are arranged with their ends(17) connected to serve as an inlet and an outlet of fluid. The springs(12,18) vibrate depending on the pressure of fluid. When the pressure decreases as the piston(10) is pulled, the external fluid enters the cylinder through openings which made as the ends(17a) are shoved by the pressure inward of the external fluid. The fluid enters the cylinder, turning toward the circumference. The cylinder(14) and the piston(10) form a cylindrical room blocked in the centripetal portion, so that the fluid rotates spirally to make a centrifugal force, however the pressure to the pistion side face(16) is not so high.

When the pressure in the cylinder increases as the piston(10) moves in the opposite direction, the pieces of the wings(16) are closely contacted together to close an inlet, and the pieces of the wings(15) are shoved by the pressure to make openings, through which the internal fluid is drawn to the higher-pressured compartment(33). At the flow channel between the pieces of the wings(15), the velocity of fluid decreases and its pressure increases.

The structures of the pieces of the wings(15,16) is similar to those of the turbine wings(127,128) in Fig.1, so that the pressure and velocity of fluid change effectively in the flow channel between the wings.

The springs(21,22) around the centripetal axis(20) efficiently operate the piston(10) to reciprocate.

The cam(31) converts the rotation of the electric motor(30) to its reciprocation. Alternatively, the reciprocating electric motor(30a in Fig.21) itself reciprocates.

Fig.21 shows a fourth embodiment of the compression means in the power generating system(100). The difference from the third embodiment is that the outlet(15) is near by the middle of the cylinder, and in front of the outlet(15) is a flow channel connected to the cylindrical route(19).

The guide wing(40) through which fluid enters toward the centripetal portion from the inlet, has the same structure as the guide wing(171) of the fluid energy enlarging means(170) in Fig.9, so that the fluid drawn off from it has an enlarged energy.

Fig.27 shows a fifth embodiment of the compression means(160) in the power generating system. The outlet(15) has the same structure as in the fourth embodiment. The middle of the cylinder(14) is unblocked, and the pieces of the inlet wings(16) are elongated inward. A small contract surface between the piston(10) and the cylinder(14) reduces friction.

Fig.28 shows a sixth embodiment of the compression means(160) wherein the only difference from a fifth embodiment is that the pieces of the inlet wings(16) are shortened to prevent the fluid from entering the middle of the cylinder(14).

Fig.29 shows a seventh embodiment of the compression

means(160). The structure of outlet(15) is the same as in a fifth embodiment, however, a fluid energy enlarging means(whose structure is the same as 170 in Fig.9) is arranged in place of the inlet of the piston(10). At the outlet(24) of the fluid energy enlarging means(40) is arranged the pieces of the inlet wings, straight wings as in Fig.30, which make the fluid turn spirally inward to enter the cylinder(14). At the inlet(40c) of the fluid energy enlarging means is arranged the guide wing, same as 171 in Fig.11, which guides the fluid flow slightly slanted from the centripetal center.

Fig.31 shows a eighth embodiment of the compression means(160) in which the structure of the outlet(15) is the same as in a third embodiment and the middle of the cylinder(14) is unblocked.

Besides the above compression means(160), other kinds of ordinary compression means are utilized such as a centrifugal rotational wing mode, a rotational blade mode, a wobble plate mode, a centripetal mode, a reciprocation mode, a gear type, etc.

Also a centrifugal rotation mode, a centripetal mode, a rotational blade mode and a water mill used in water power may be utilized as the structure of the turbine(120).

The propulsion system(300) raises and reduces pressure as well according to the direction of flow, which by the difference in pressure lifts or propels machinery.

Fig.32 shows a first embodiment of the propulsion system(300) wherein its interior is closed up, and the current

supply from the power generating system(100) rotates the electric motor(310) on the top, alternatively, the power from the power generating system(100) is directly transferred to the rotational axis(311) to drive the body of rotation(320) with a number of axial flow compression wings(320a).

Upon the rotation of the rotational body(320), the fluid in the lower part is removed to the top and compressed through the rotational wing(320a), and then compressed by the guide wing in the end(321) to be drawn off to the upper compartment(331). The upper and the lower compartment(331,332) are provided with the cooling or the heating tube(325,326) to cool or heat the internal fluid. A number of cylindrical disks(333) are arranged at an interval to form a number of compartments(334), and each disk has a number of small apertures through which the higher-pressured fluid in the upper part runs to the below and is dispersed. The gradual decrease in pressure from the upper compartment(331) to each compartment(334) makes the system lifted or propelled upward, since the upward pressure is larger on the whole than the downward. The aperture(336) in the cylindrical disk(333a) and the aperture in the next(333b) are staggered each other(shown in Fig.40). The more the cylindrical disks(333) are, the more efficient becomes the system.

The lift or propulsive force generating means, cylindrical disks(333) are thin as in Fig.32, or thick as in Fig.33. Alternatively the disks(333) are concavely curved to increase the internal pressure as in Fig.36.

Alternatively, shown in Fig.41,42,60, the apertures(336) are formed in only one side of the cylindrical disk(333), which on each disk are staggered each other to disperse the downward pressure of fluid.

The supports(337 in Fig.39) are arranged to support the disk(333).

The compression means(320) additionay has the fluid energy enlarging means, comprising the short straight wings(351b) arranged radially as centrifugal compression wings, the guide wings(353 a in Fig.76) which modify the flow direction centripetally from the outside of an inlet, and the guide wings(352a) which draw off the turning fluid straight as in Fig.35. The compression means(320) in Fig.35 has a number of compartments connected axially.

Alternatively, shown in Fig.34, the propulsion system(300) has a number of the compression means(320) connected axially on the same rotational axis(311).

The apertures(336) in each disk(333) are preferably small and large in number, whose shapes are in any forms.

The long(in Fig.37 to Fig.39) and thin apertures(351 in Fig.40) are preferable to have the downward fluid dispersed.

The apertures(336) may be thick with its upper edge(361) protruding sharply as in Fig.43.

Many forms of an aperture are shown in Fig.43 to Fig.75.

In Fig.44 to Fig.46 many pieces are stacked to make an aperture, each of which is made narrower downward and abruptly wider.

In Fig. 47 to Fig. 49 the aperture is gradually made narrower and gradually wider, and repeated. The section of an aperture is made wider in two-dimension in which the side face(362) and the front(363) are enlarged together, alternatively in one dimension in which only one side is enlarged.

Also the section of an aperture may be four-cornered or circular, preferably rectangular or elliptic.

The aperture in Fig. 50 has the same shape as in Fig. 44, however, is not stacked.

The aperture in Fig. 51 has the same shape as in Fig. 47, however, is not stacked.

The aperture(336) in Fig. 52 and Fig. 53 has its pieces stacked with each piece thin, so that the section is enlarged and contracted abruptly.

The aperture in Fig. 54 has the same shape as in Fig. 52, which is not stacked and each piece is staggered.

The aperture in Fig. 55 is similar to that in Fig. 52, which protrudes sharply slanted upward.

In Fig, 56 and Fig. 57, the apertures(336) form long shape on the concavely curved groove.

Fig. 58 and Fig. 59 shows another embodiment of the aperture. On the middle point between apertures, a sharp protrusion is formed, and portions around that point are curved. The fluid which have passed the aperture made narrower downward, turns upward on the curve of the lower surface(364) of the compartment(334), then turns on the upper surface(365)

of the compartment.

The aperture in Fig.61 and Fig.62 is similar to that in Fig.40, which is circular and has a swirling groove(339) around it. The fluid through the aperture is dispersed turning downward.

The number of the swirling groove(339) may be four(in Fig.63 and Fig.64) or more(in Fig.65 and Fig.66).

The aperture in Fig.67 is similar to that in Fig.50, and additionally has the swirling groove(339) to have the fluid turn spirally downward and dispersed.

Fig.68 shows similar structure to Fig.51, in which the aperture(336) has the swirling groove(339) only on the upper flow channel.

Fig.69 shows the opposite structure of Fig.68, in which the pressure increases along the expanding route(371). The pressure in the wider portion(372) is higher than in the narrower portion (373) to turn the downward fluid.

The aperture in Fig.70 is similar to that in Fig.52, but is round inside and provided with the swirling groove(339).

Fig.71 is a stacked structure of the apertures of Fig.67, and Fig.72 is of Fig.69.

Fig.73 to Fig.75 shows a stacked structure of the upper body(341) and the lower body(342) to have the downward fluid turned by the swirling groove(339) at the narrower part(373).

The upper body(341) has the swirling groove(339) on the top and the projecting part(375) on the bottom. The lower body(342) has the cylindrical space(374) around the

aperture(336).

The other structures of the aperture(336) may be utilized in this invention. The propulsion system(300) may have another shape except cylindrical shape depending on use.

The compression means(320) may be arranged outside to have the lower-pressured fluid enter there and to remove the higher-pressured fluid to the lift generating means(333,334). Alternatively the propulsion system(300) has an open structure as in Fig.77, in which the fluid is passed through the lift generating means(377) by the compression means(320), to be drawn off outside(376).

According to this invention, after the first drive of the power generating system(100) by an external electric power supply, though an external power supply is suspended at a stationary state, the self-generated power or electric power lifts and propels the system of this invention. The generated power is from the heat absorbed from the external fluid. To make a lifting means to lift an airplane and the like, the above system is directed upward.

To form a propulsion system, the upper part of the above system is directed toward the propelled direction.

Therefore airplanes, ships or cars are lifted or propelled independent of the external fluid or external weather conditions. Spaceships are efficiently lifted and propelled even in vacuum. Also an airplane is able to take off and land safe without an airstrip.

A number of the above lift and propulsion means are

utilized in an airplane, alternatively in many uses combined with the other means. The above power generating means is utilized in an electric car, ship and the like as the source of power and electricity, alternatively in industry and house as energy source. Also the heat exchanger in the power generating system is utilized as a cooling device.

While the description of the invention has been given with respect to preferred embodiments, it is not to be considered in a limited sense. Variations and modification will occur to those skilled in the art.

What is claimed is :

1 . A system for generating power, propulsive force, and lift by use of fluid comprising a power generating system(100) and a propulsion system(300), the power generating system(100) including :

an electric motor and generator(130) rotatable by an external power supply ; a compression means(160) rotatable by said electric motor and generator(130) and removing fluid forcibly ; a turbine(120) generating power from the fluid energy, removing fluid to said compression means(160), and further having fluid expanded and then recompressed in its flow channel; and a heat exchanger(110) transferring heat from external fluid to the fluid entering said turbine(120);

wherein the rotational force of said turbine(120) is larger than that of said compression means(160), resulting in the use of the extra power;

the propulsion system(300) including :

a compression means(320) arranged to forcibly remove the fluid in enclosed compartment by said power or an electric power from said power; separation walls(333) dividing the flow channel connected to said compression means(320) into many compartments; and compartments(334) formed between two said separation walls;

wherein fluid passes through small apertures formed in said separation walls to be dispersed, and its downward pressure decreases by dispersion of fluid to make a gradual difference between a higher-pressured compartment(331) and a

lower-pressured compartment(332) through said compartment(334), resulting in the upward lift or propulsive force.

2. A system for generating power, propulsive force and lift by use of fluid comprising a power generating system(100) and a propulsion system(300), the power generating system(100) including:

an electric motor and generator(130) rotatable by an external power supply; a compression means(160) rotatable by said electric motor and generator(130) and removing fluid forcibly; a turbine(120) generating power from the fluid energy and to removing fluid to said compression means(160) ; a second compression means(200) rotatable by said electric motor(130), arranged on the same axis with said compression means(160) and said turbine(120), and further constituting a separate flow circuit to romove fluid forcibly ; an evaporation means(250) constituting a flow circuit with said compression means(200) to cool fluid; and further a circulation system comprising:

a first heat exchanger, wherein the cooled fluid at an outlet of said turbine(120) is more cooled by the fluid running in the internal flowing tube to enter said compression means(160); a second heat exchanger(210), wherein the compressed fluid is cooled by the fluid in the internal flowing tube(211); a third heat exchanger(230), wherein the fluid is heated by the fluid running in the internal flowing tube(231); and a fourth heat exchanger, wherein the fluid is heated by the fluid in the internal flowing tube(241) to enter said turbine(120);

wherein by said heat exchangers relieving said compression means(160) from removing fluid, force of fluid rotating said turbine(120) is larger than that rotating said compression means(160), resulting in the use of the extra power;

the propulsion system(300) including:

a compression means(320) arranged to forcibly remove the fluid in enclosed compartment by said power or an electric power from said power; separation walls(333) dividing the flow channel connected to said compression means(320) into many compartments; and compartments(334) formed between two said separation walls;

wherein fluid passes through small apertures formed in said separation walls to be dispersed, and its downward pressure decreases by dispersion of fluid to make a gradual difference between a higher-pressured compartment(331) and a lower-pressured compartment(332) through said compartment(334), resulting in the upward lift or propulsive force.

3. A system as claimed in Claim 1, wherein said turbine(120), a fluid pressure enlarging means and power generating means, is characterized in that the fluid(121) before said turbine(120) in higher pressure increases in velocity as a flowing area between turbine wings(127) gets narrower, and the fluid decreases in velocity as a flowing area between the next turbine wings(128 or 129) gets wider, resulting in increase in fluid density to give power.

4. A system as claimed in Claim 1, wherein said power generating system further comprises a fluid energy enlarging

means(170), said fluid energy enlarging means(170) including:

a guide wing(171) through which the fluid from said turbine(120) is directed toward a centripetal center;

a centripetal portion(173) where fluid turns and is compressed ; and a guide wing(172) through which the fluid is drawn off straight.

5. A system as claimed in Claim 2, wherein said circulation system comprises :

a first heat exchanger(290), wherein the fluid which have passed through said turbine(120) exchanges heat with the fluid toward said turbine(120); a second heat exchanger(280), wherein the fluid is cooled more by cooled fluid in cooling circuit; a cooling part(271) cooling the fluid again after passing through the compression means(160); a fourth heat exchanger(190), wherein the fluid absorbs heat from the fluid in high temperature of a cooling circuit ; and then a fifth heat exchanger(260), wherein the fluid absorbs heat from external fluid again to enter said turbine(120).

6. A system as claimed in any preceding claim, wherein a short straight rotational wing(162) is slightly slanted toward the circumference to reduce centrifugal force of the rotating fluid (shown in Fig.2 and Fig.3), the head of said rotational wing(162b) is slanted slightly toward the circumference, and the tail of a guide wing(161) in front of said rotational wing(162) is arranged parallel to the surface(162F) of said rotational wing(162) (shown in Fig.10).

7. A system as claimed in any preceding claim, wherein

said compression means(160) is provided with a number of fluid energy enlarging means on the same rotational axis in which short straight rotational wings(166 in Fig.16) are arranged radially around a central axis, at the inlet the fluid entering centripetally from outside turns to increase in pressure, and through a guide wing(165) fluid enters parallel to the surface of the rotational wing.

8. A system as claimed in any preceding claim, wherein said compression means(160) comprises a piston(10) and a cylinder(14), a number of curved wings are arranged in a cylinder side face(15) and a piston side face(16), as said piston is pulled, said curved wings in said piston surface(16) make apertures according to difference in pressure between the interior and exterior of said cylinder(14), through which fluid turns spirally to enter said cylinder, and on the contrary as said piston is pushed, said curved wings in said cylinder face(15) make apertures through which the internal fluid turns spirally to enter a higher-pressured compartment, resulting in the decrease in fluid velocity and increase in pressure.

9. A system as claimed in Claim 8, wherein in front of an outlet(15 in Fig.21) of said cylinder and an inlet(24 in Fig.29) of said piston, a guide wings(40b,40c) are arranged to have fluid enter centripetally from the outside, and a fluid energy enlarging means is additionally arranged to have fluid in the centripetal part(40a,40d) compressed and drawn off or enter.

10. A system as claimed in any preceding claim, wherein

said propulsion system comprises :

a driving means(310) driven by the power from said power generating means(100) ;

a compression means(320) removing or compressing fluid in one direction; and

a cooling tube and a heating tube(325,326) through which external fluid runs absorbing heat to cool fluid or heating cooled fluid, resulting in a lift or a propulsive force.

11. A system as claimed in Claim 10, wherein in said propulsion system(300) a number of separation walls(333) are arranged to divide the flow channel around said compression means(320) into many compartments(334), and have a number of small apertures through which fluid runs through said compartments(334) to decrease the downward pressure, resulting in a gradual decrease in pressure between said compartments(334).

12. A system as claimed in Claim 10, wherein the compressed fluid by said compression means(320) passes through many forms of the apertures formed in said separation walls(333) of said propulsion system(300) to disperse pressure of fluid.

Fig.1

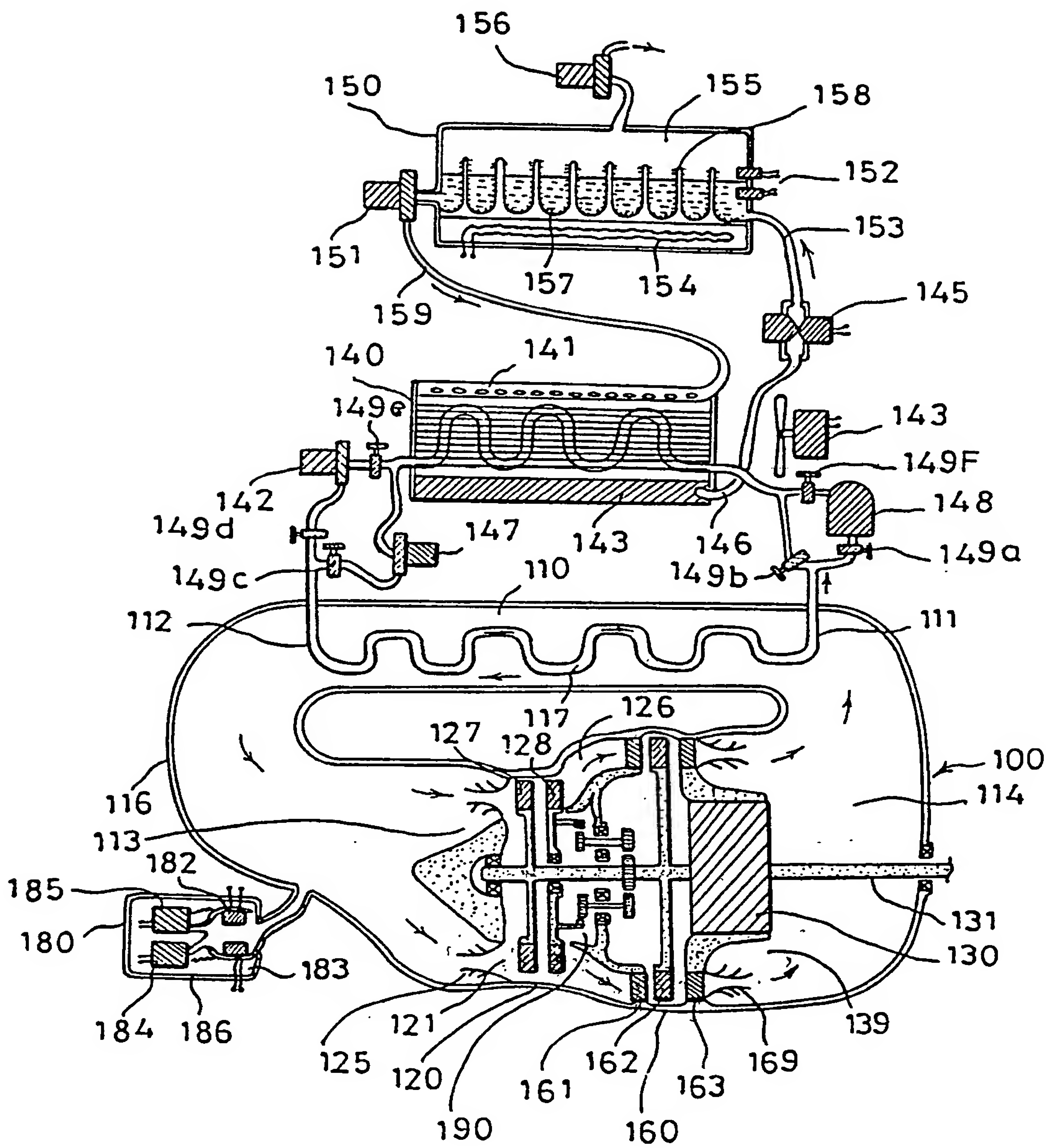
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Fig.2

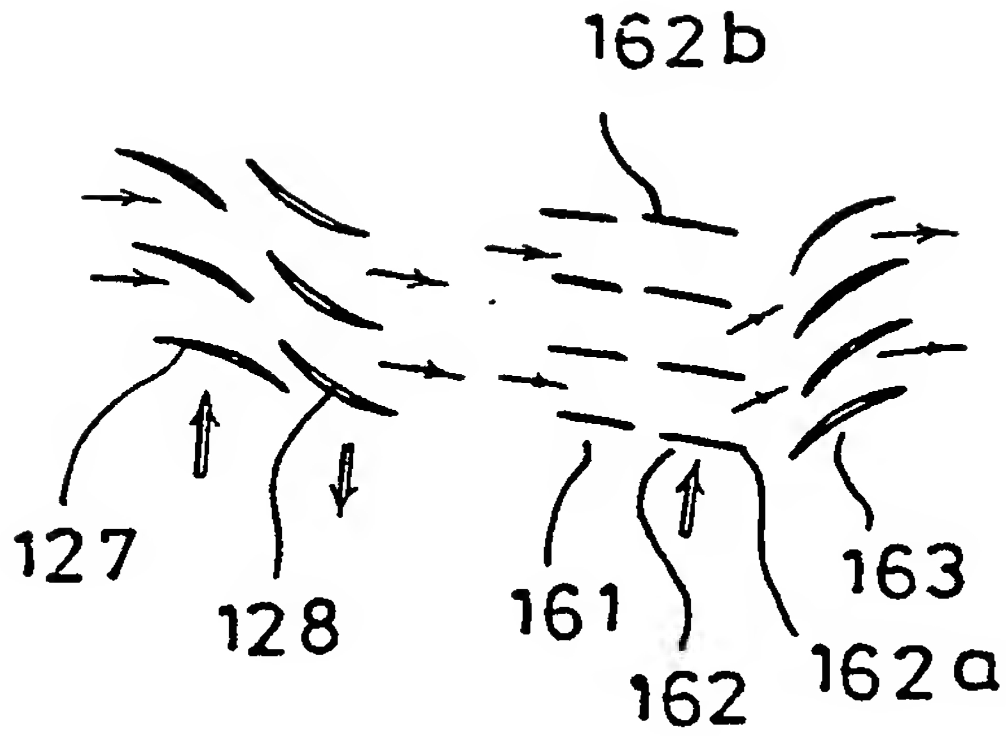


Fig.3

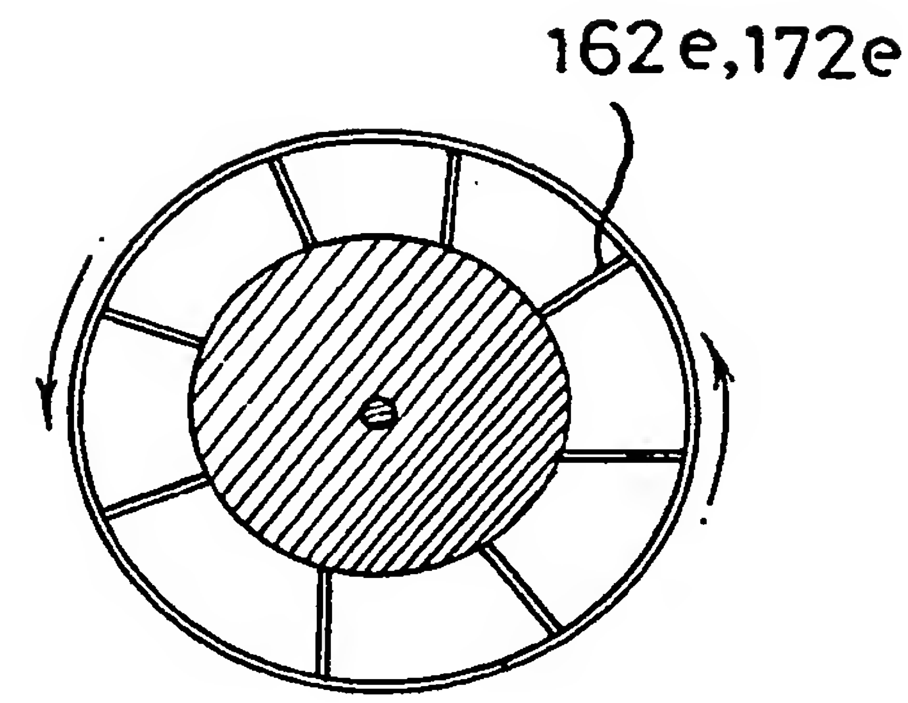


Fig.4

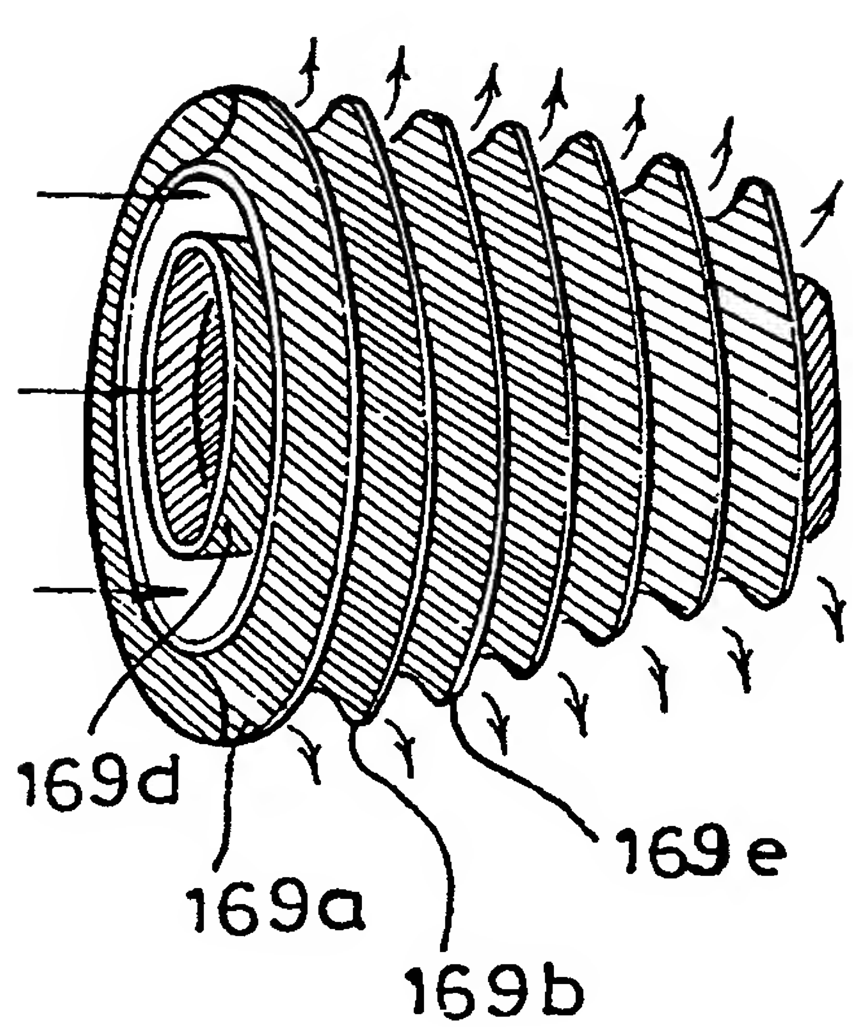


Fig.5

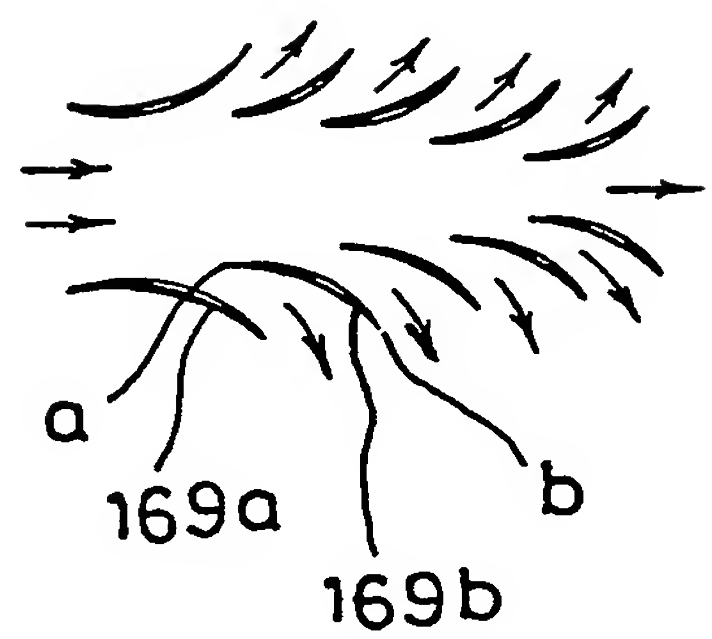


Fig.6

Fig.7

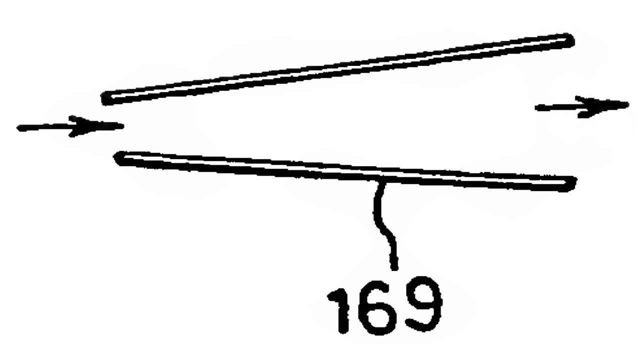


Fig.8

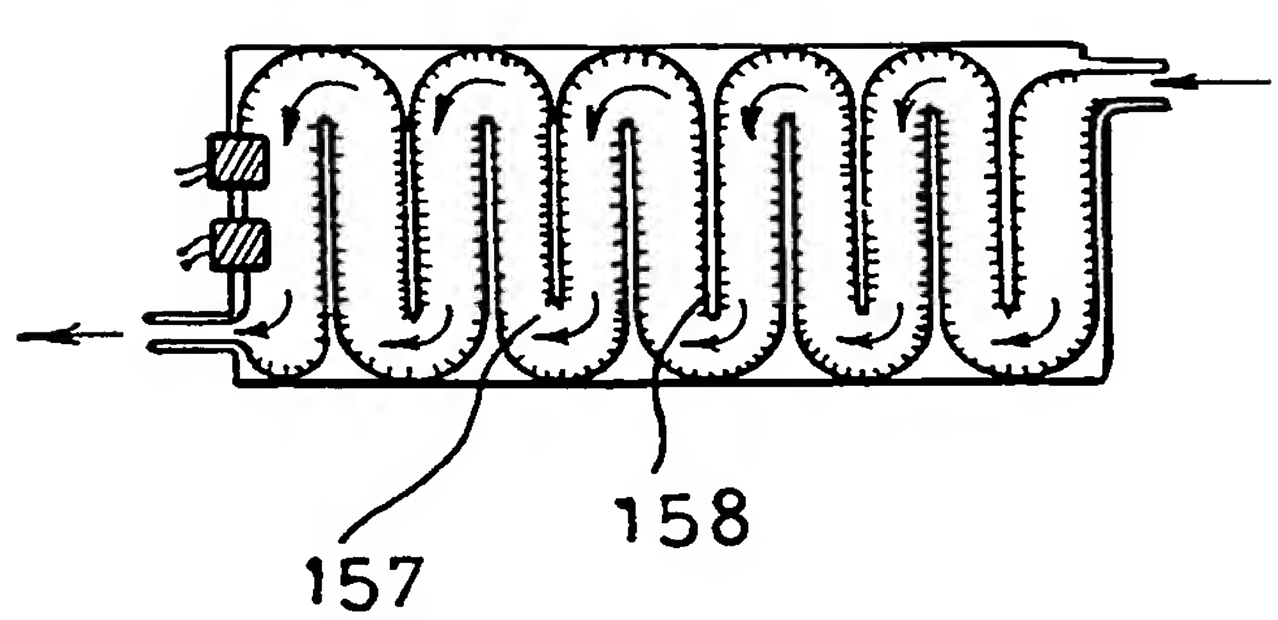
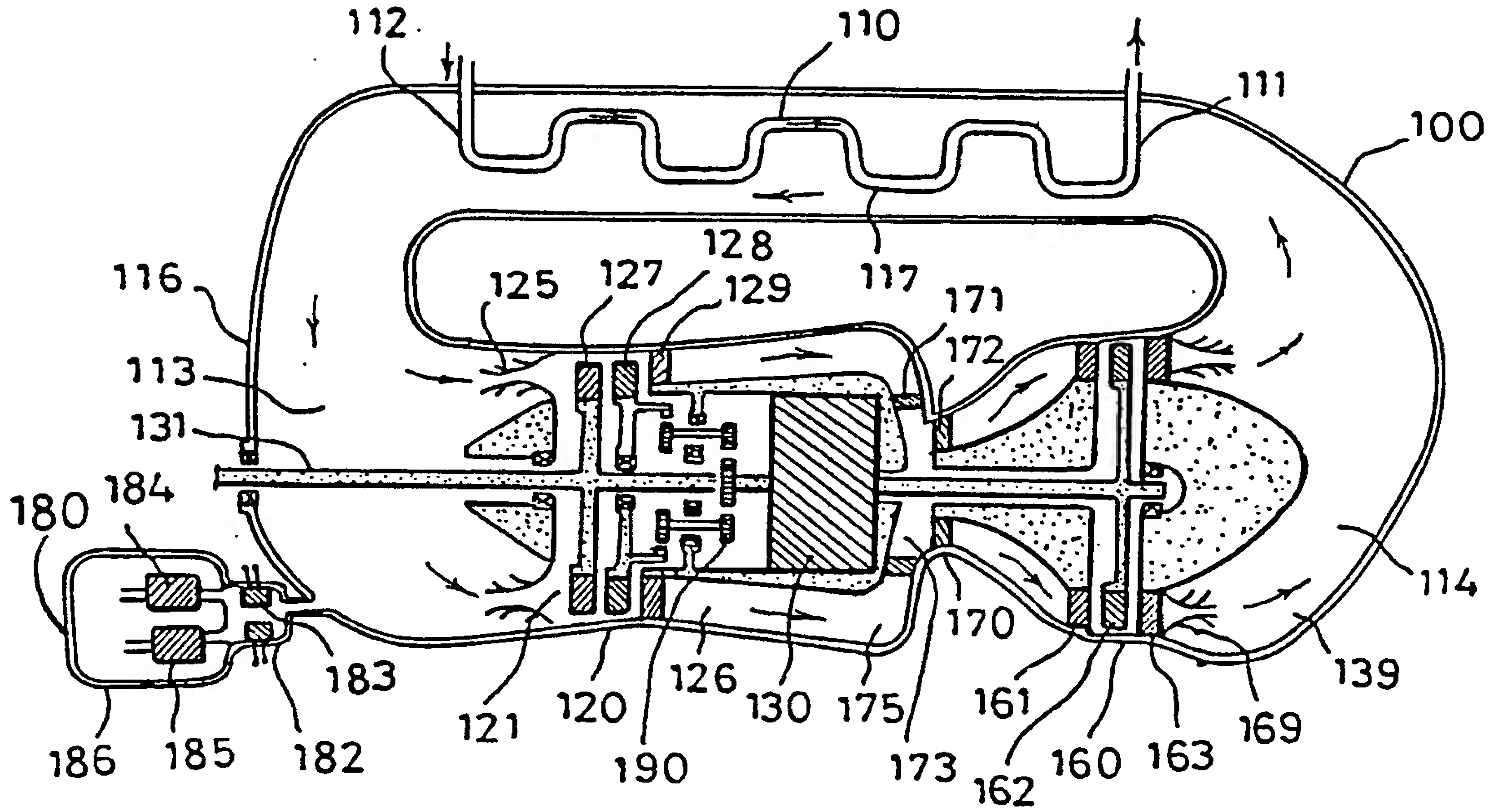


Fig.9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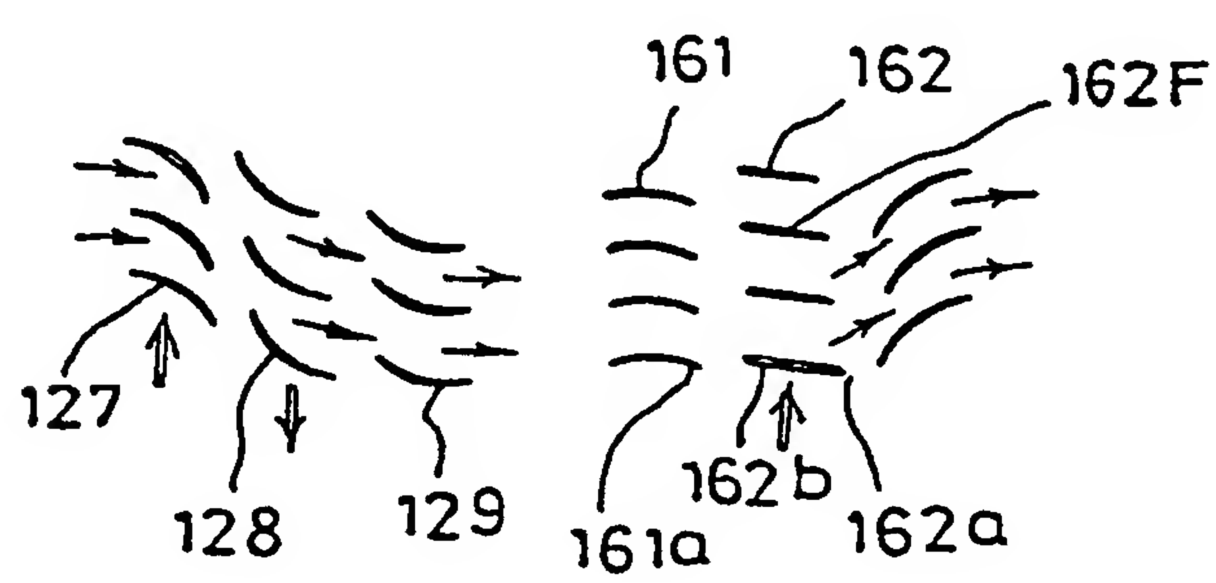
162

Fig.10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162b
162a

Fig.11

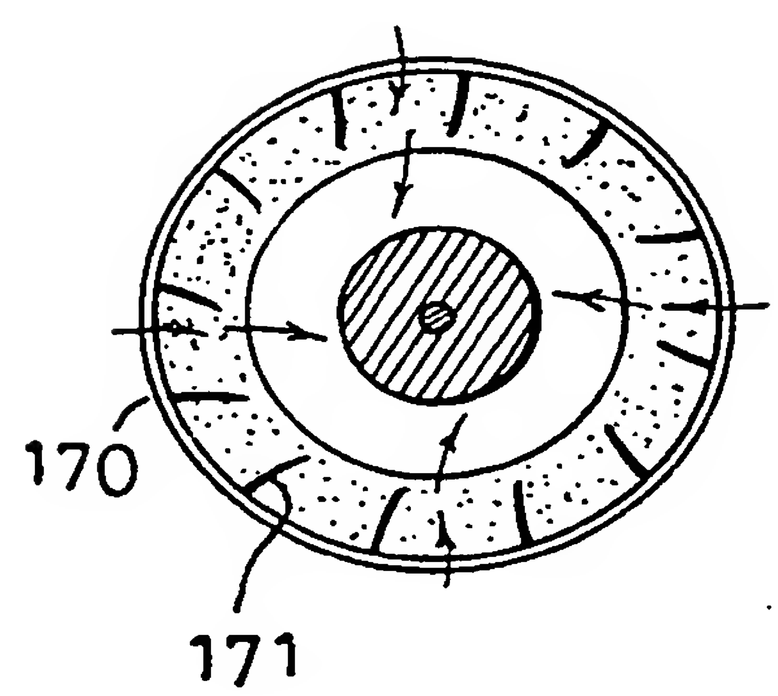

Fig.12

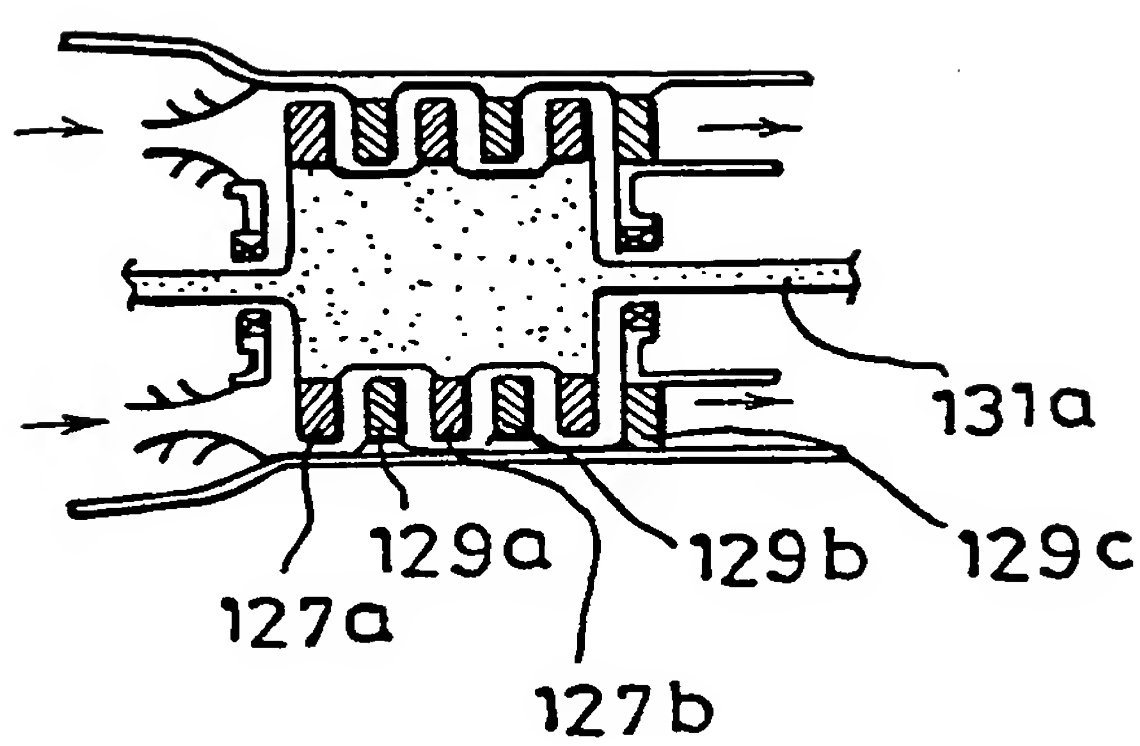

Fig.13

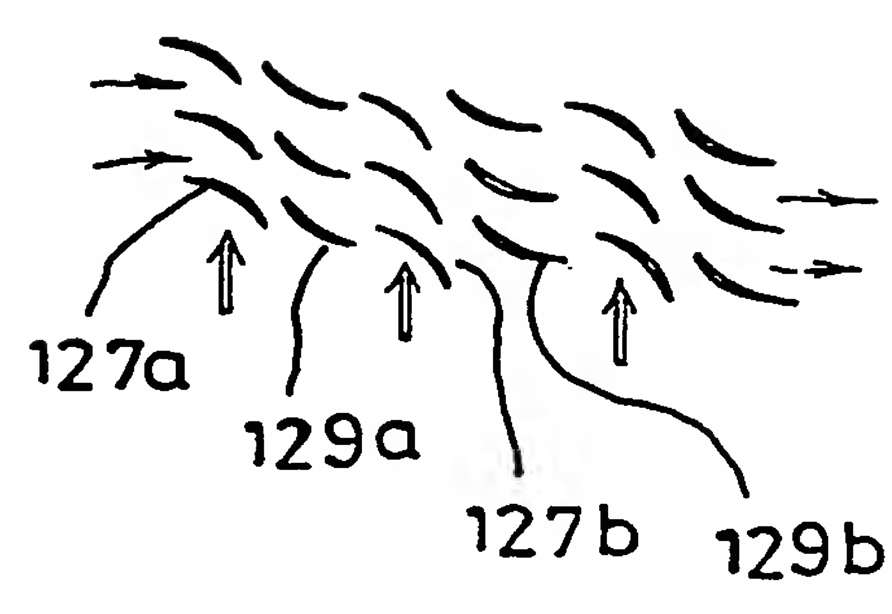

Fig.14

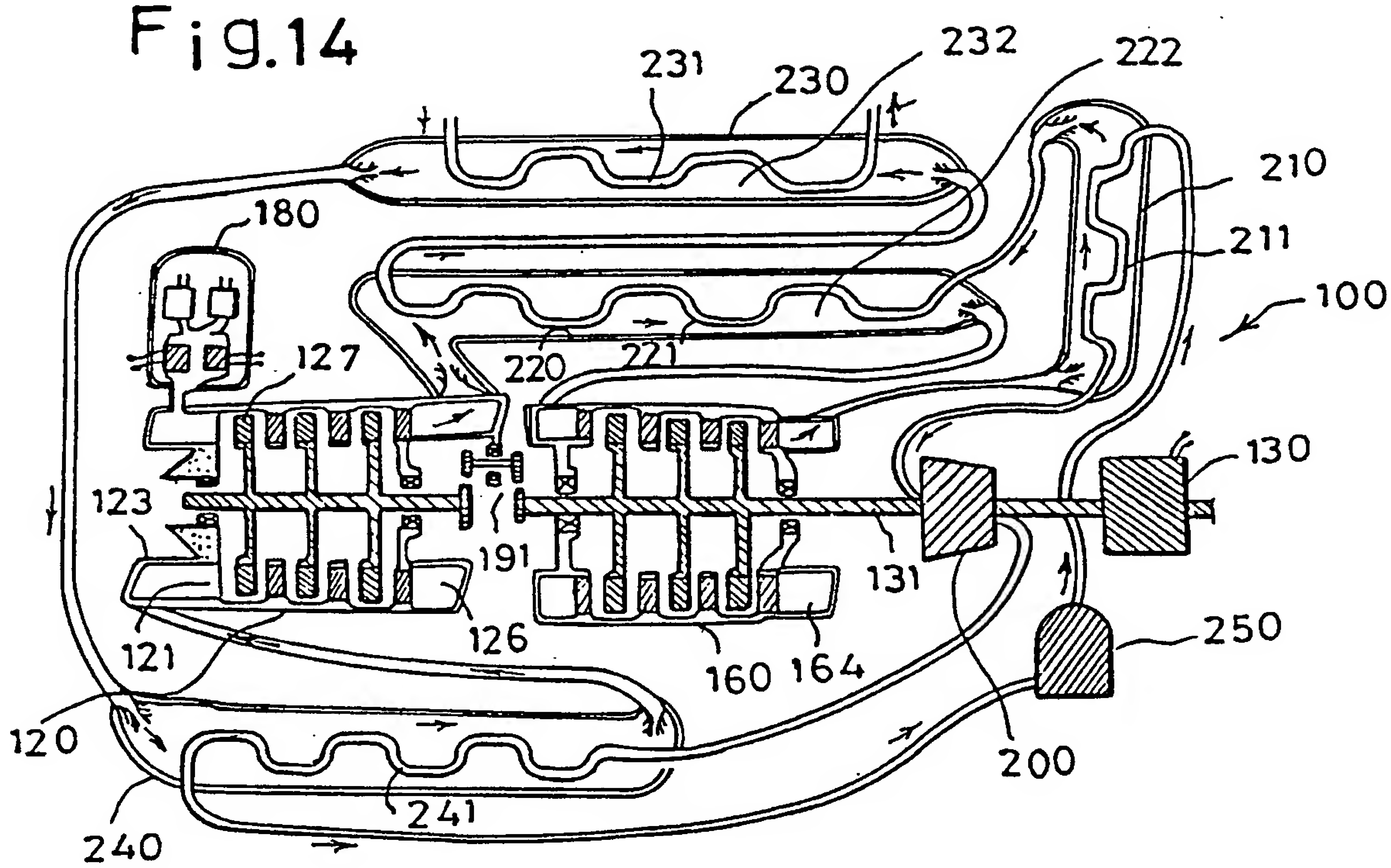
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Fig.15

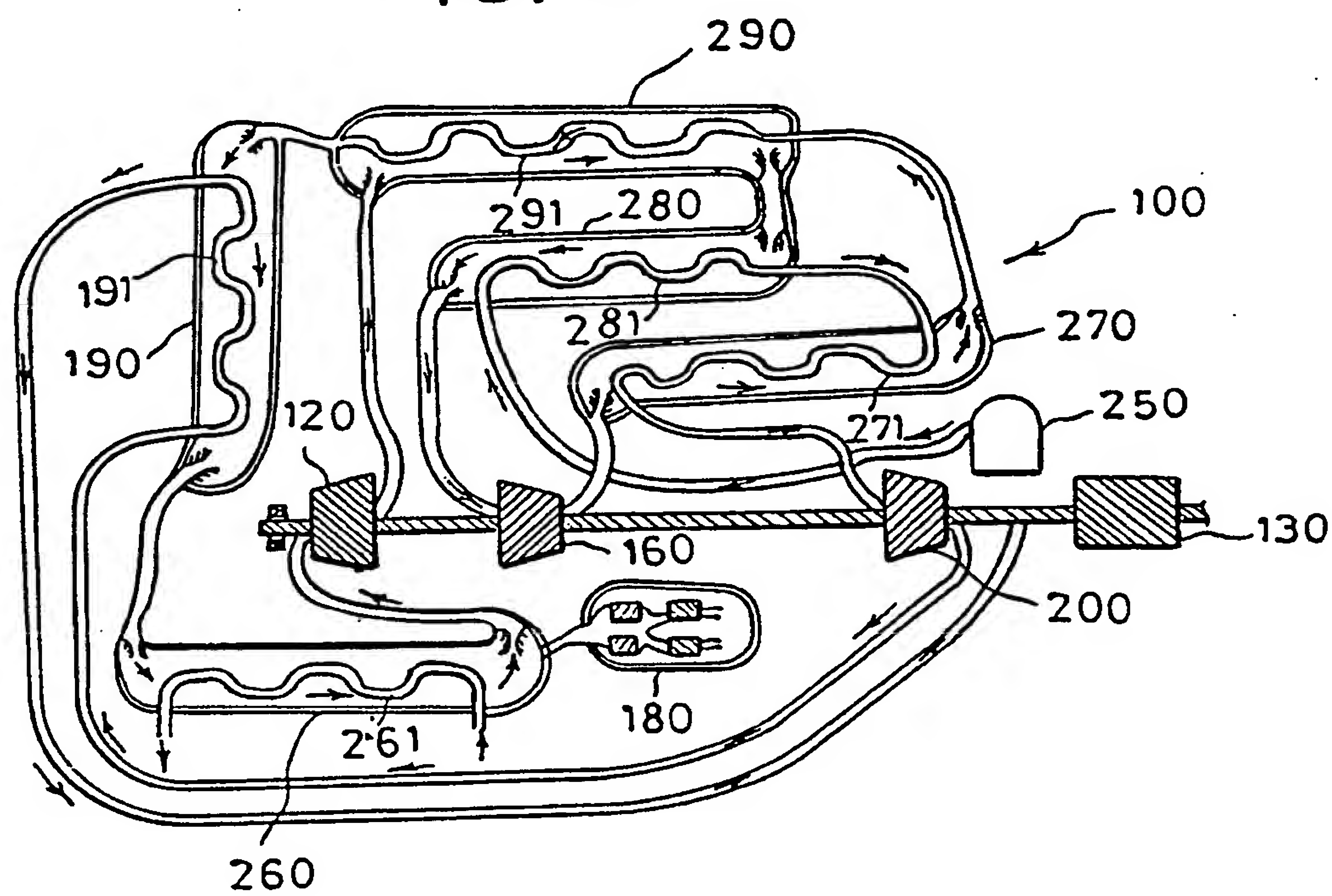
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Fig.16

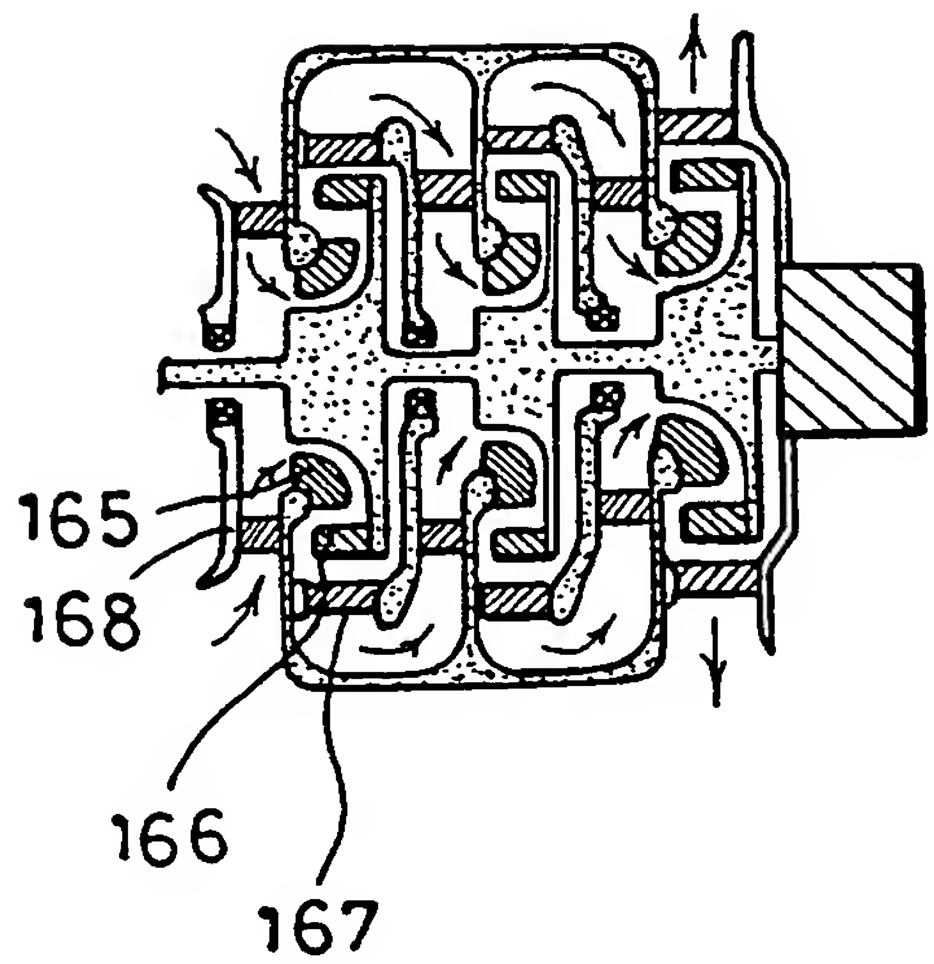


Fig.17

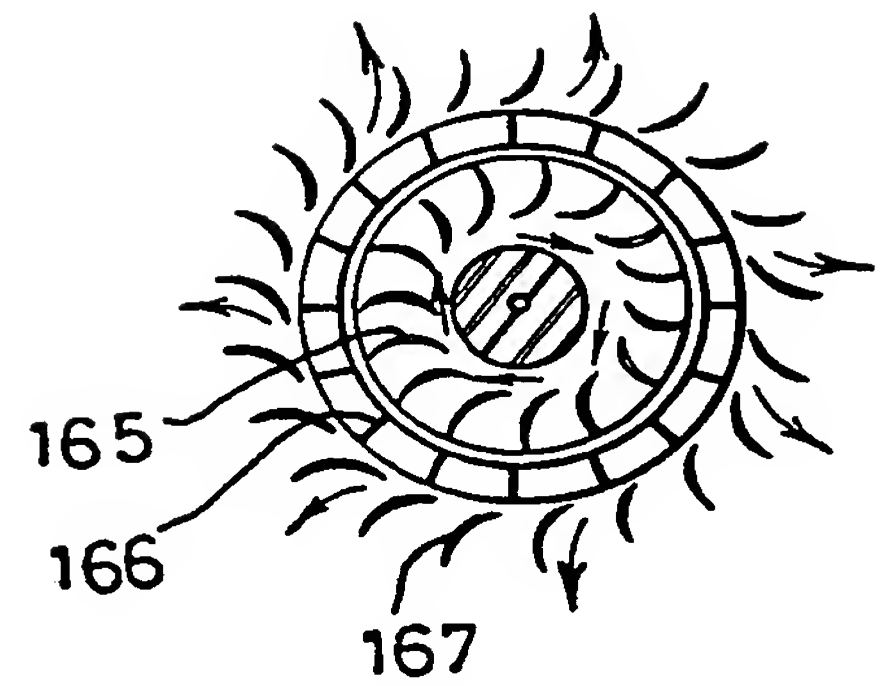


Fig.18

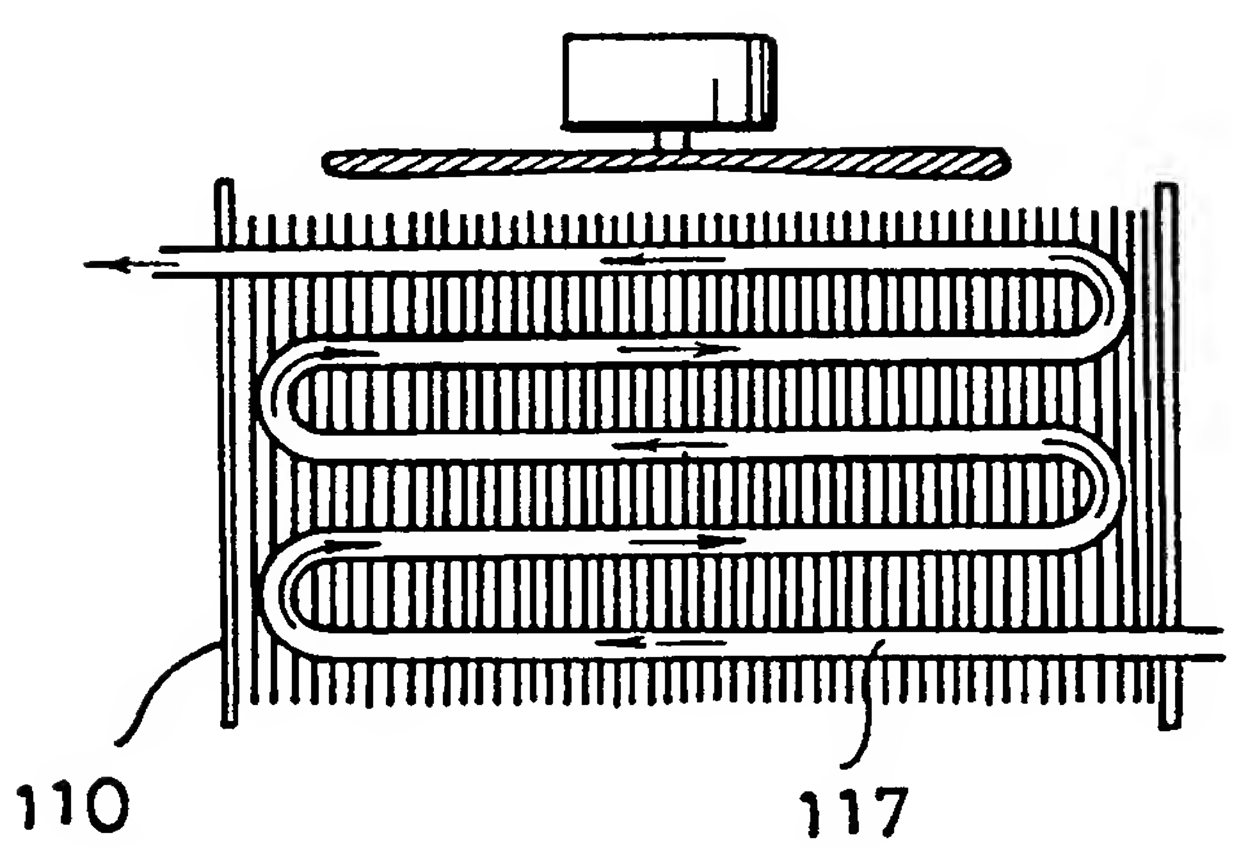
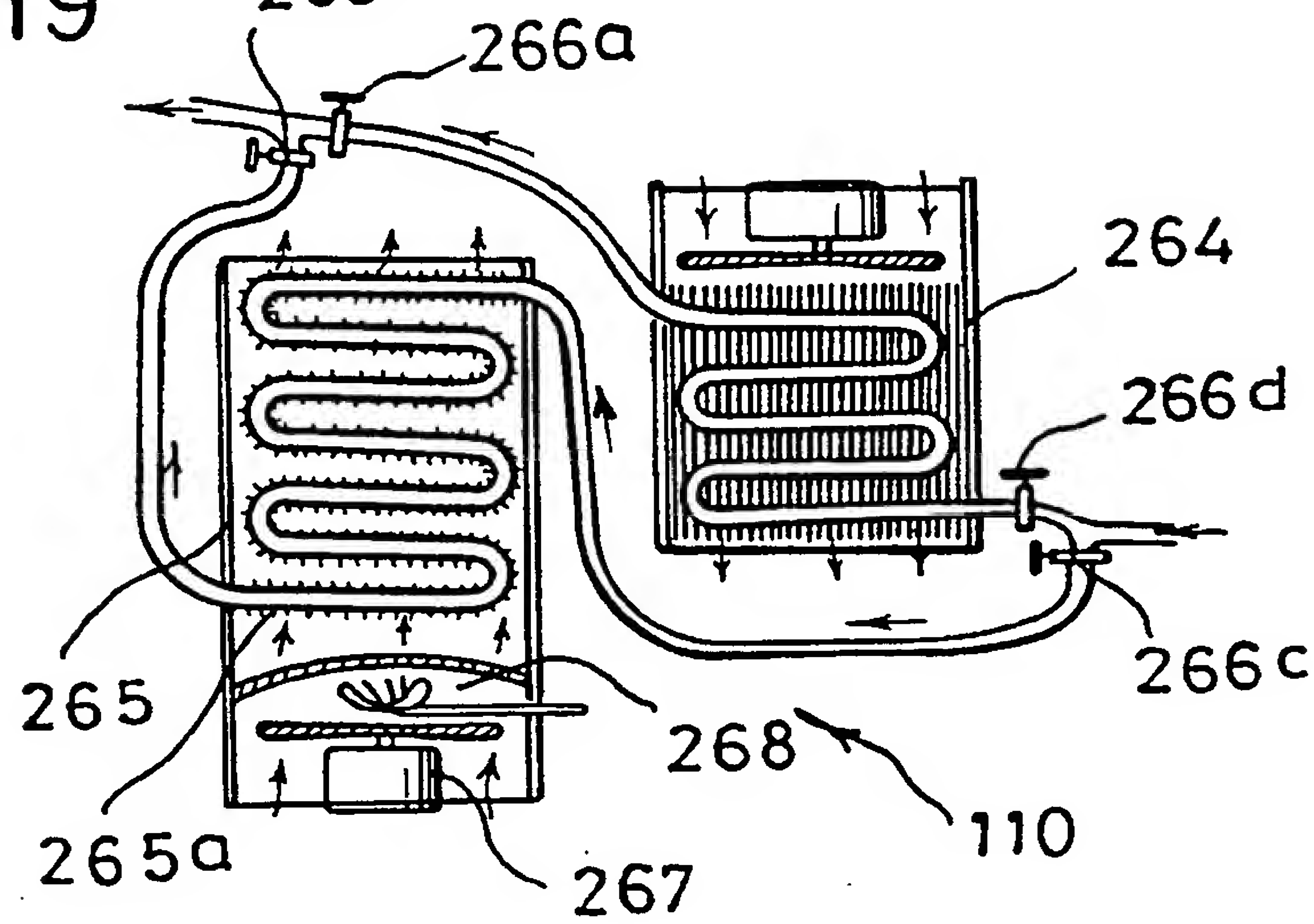


Fig.19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266d
266c
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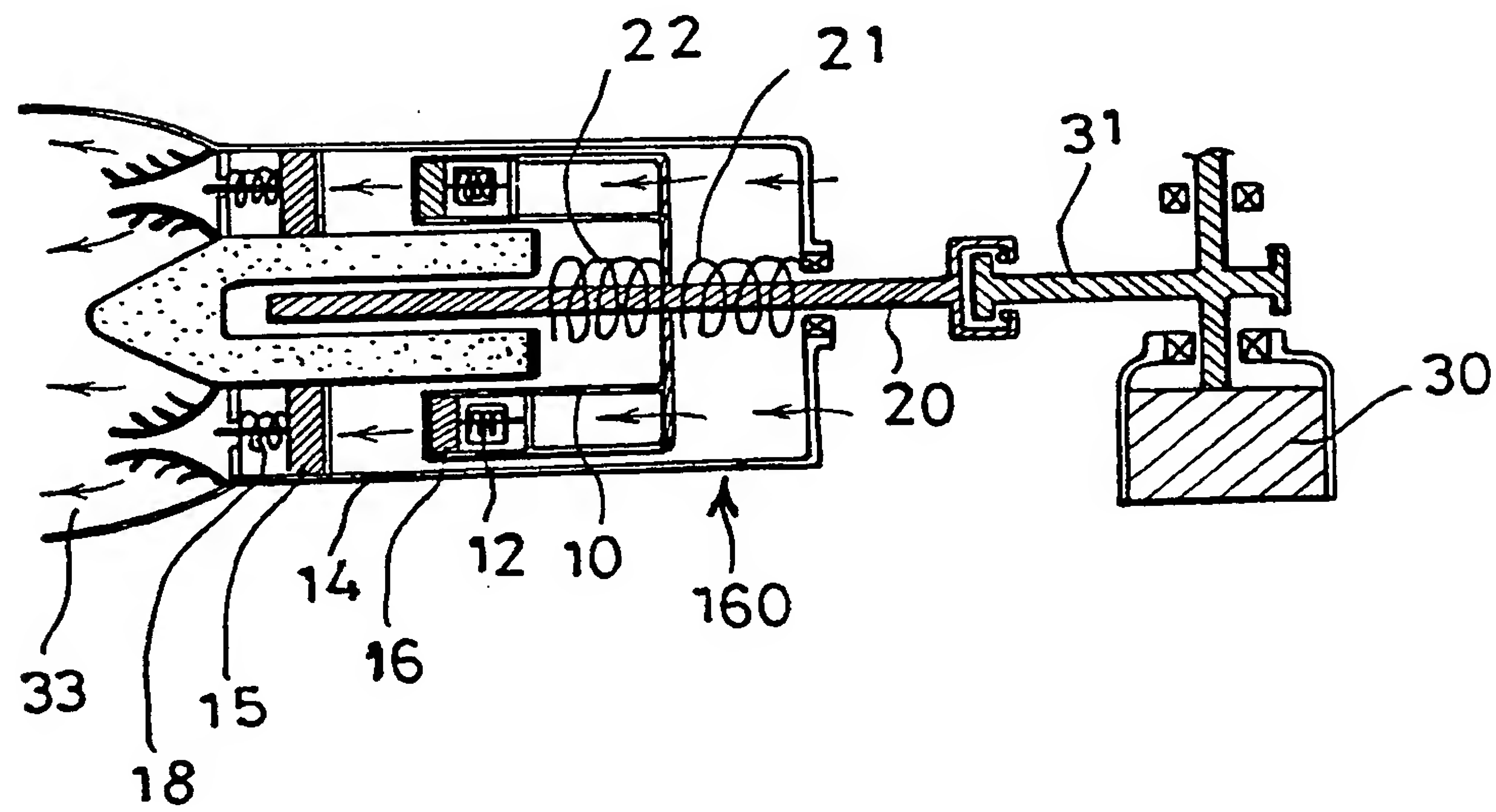
265a
268
110
267

Fig.20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12
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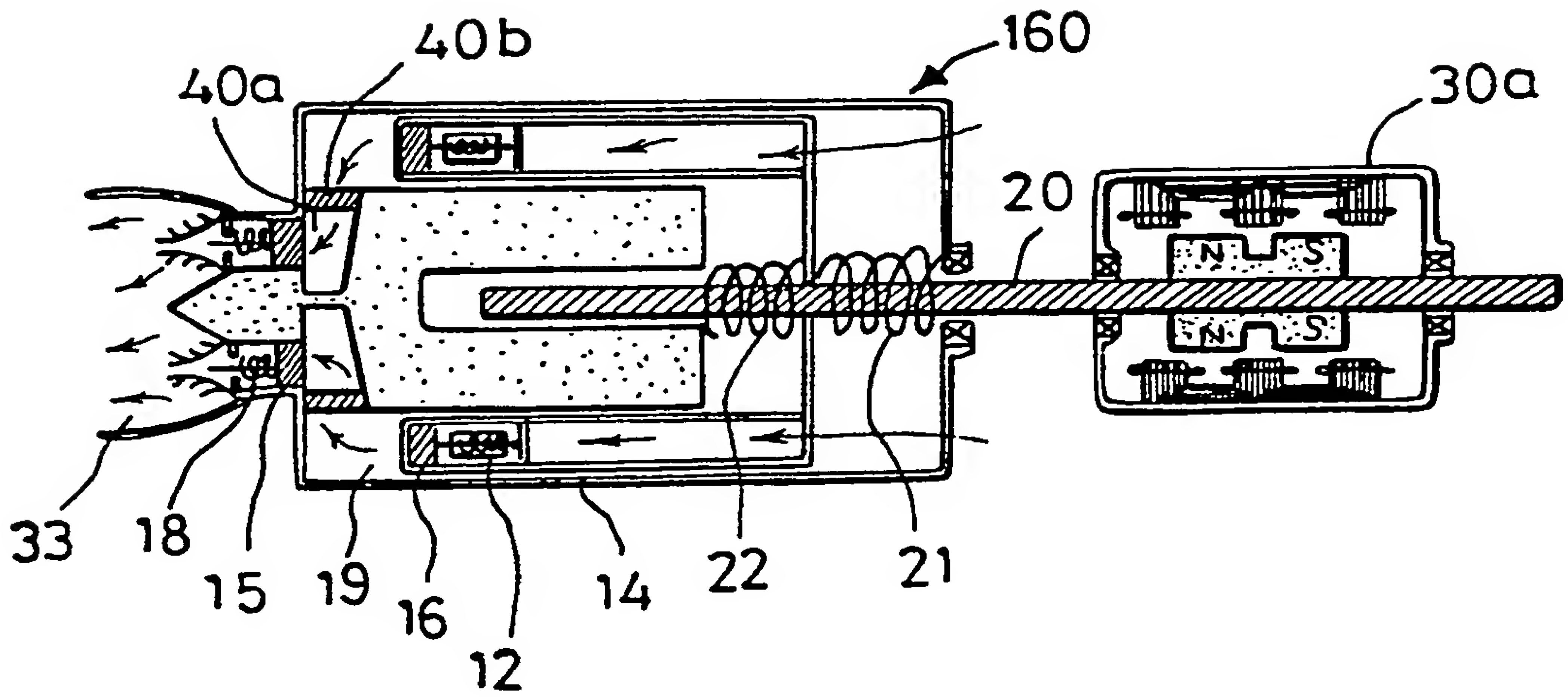
33
15
18

Fig.21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N
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N
S
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16
12
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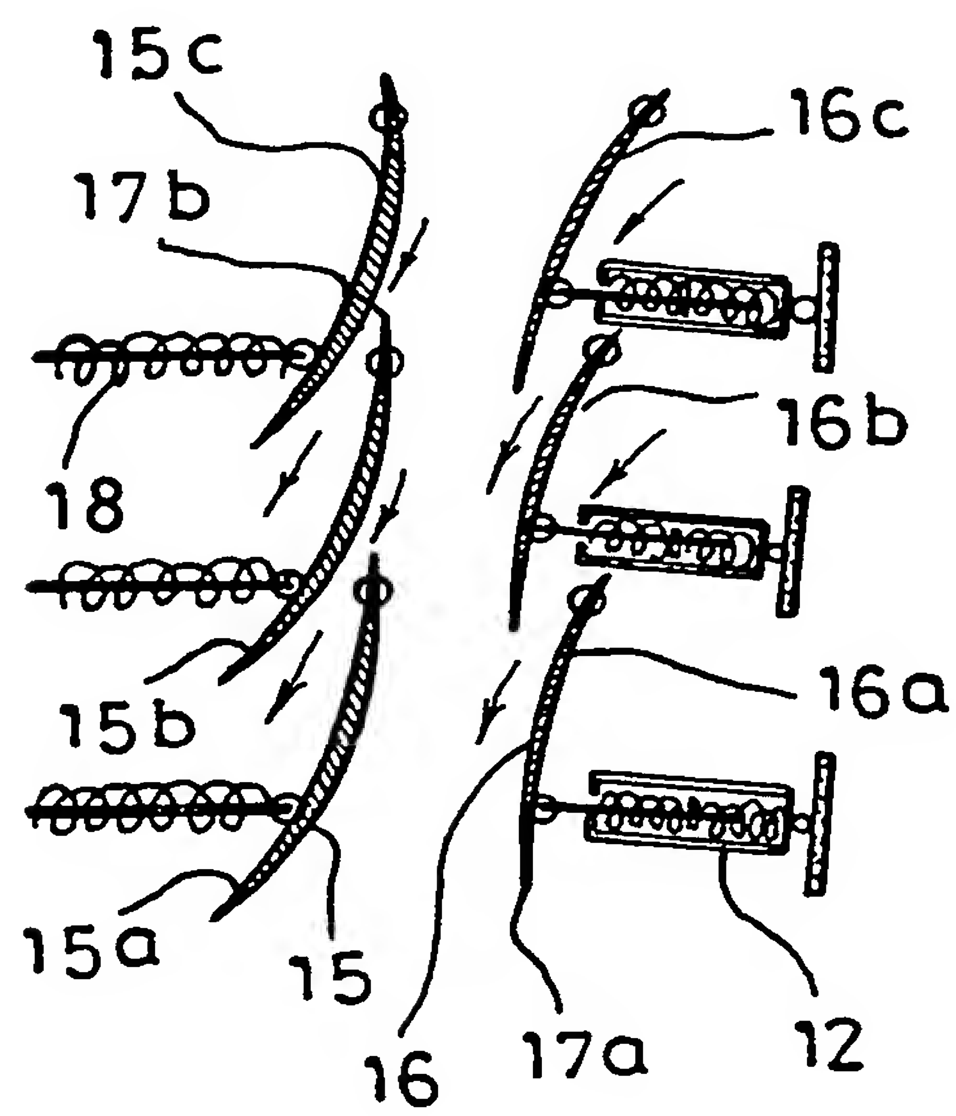
22
21

Fig.22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16a
15b
15a
15
16
17a
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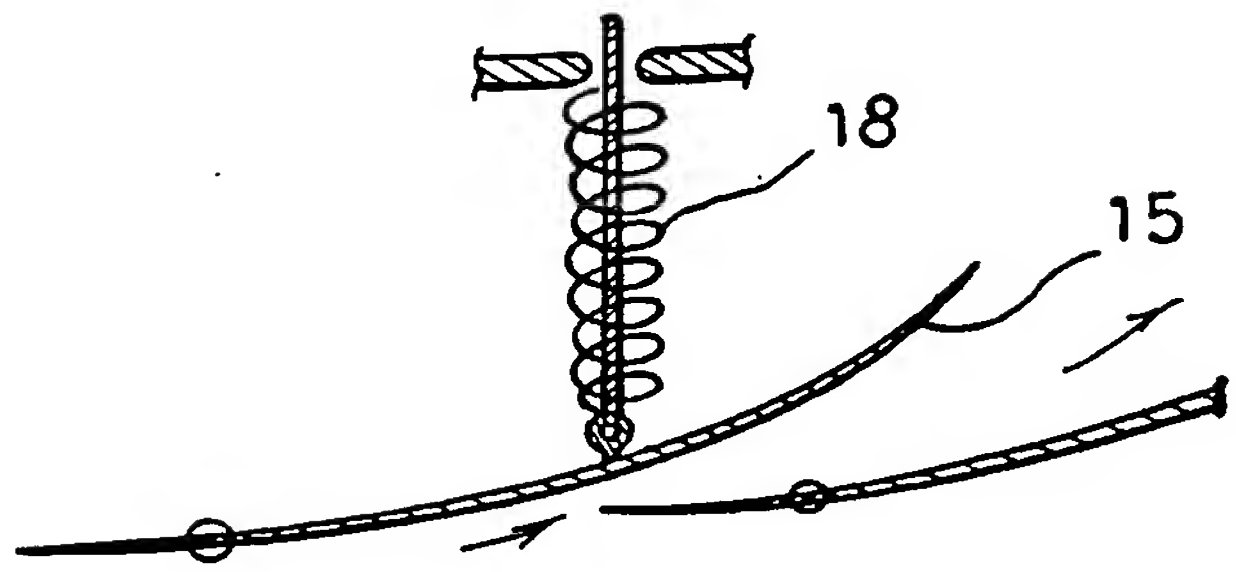
Fig.23



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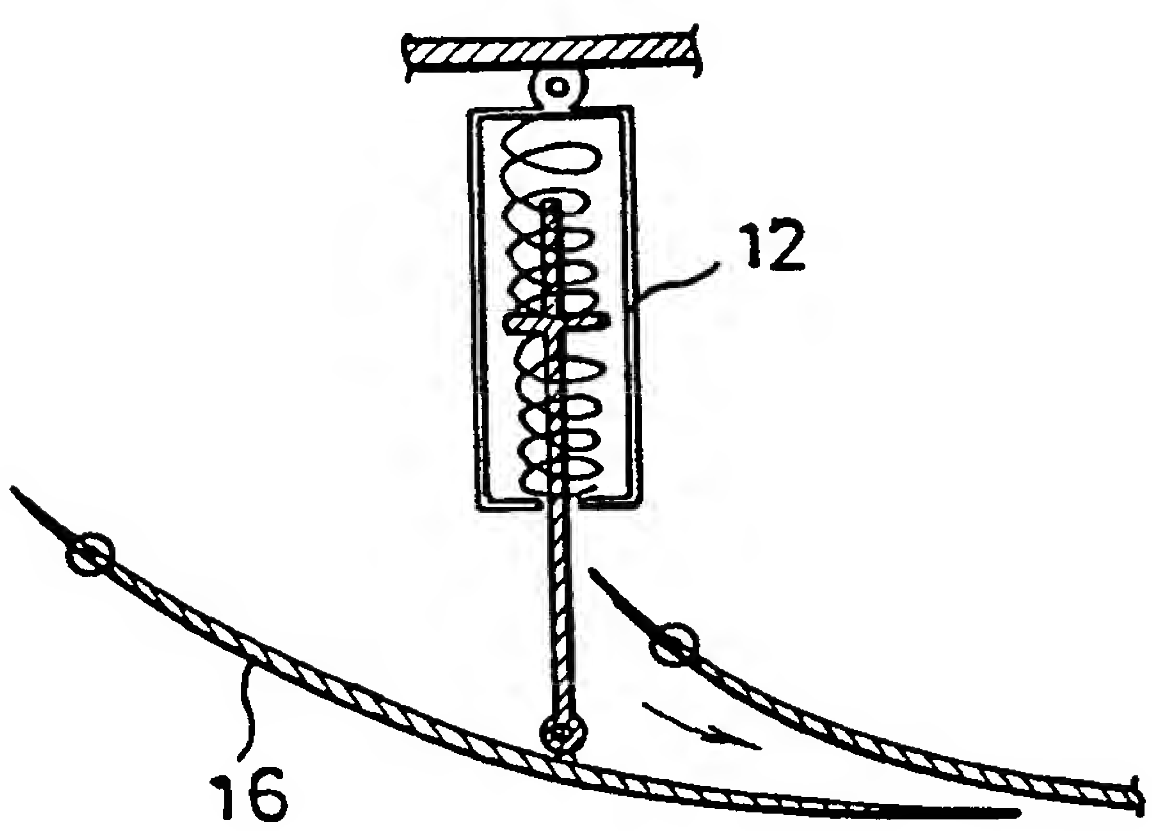

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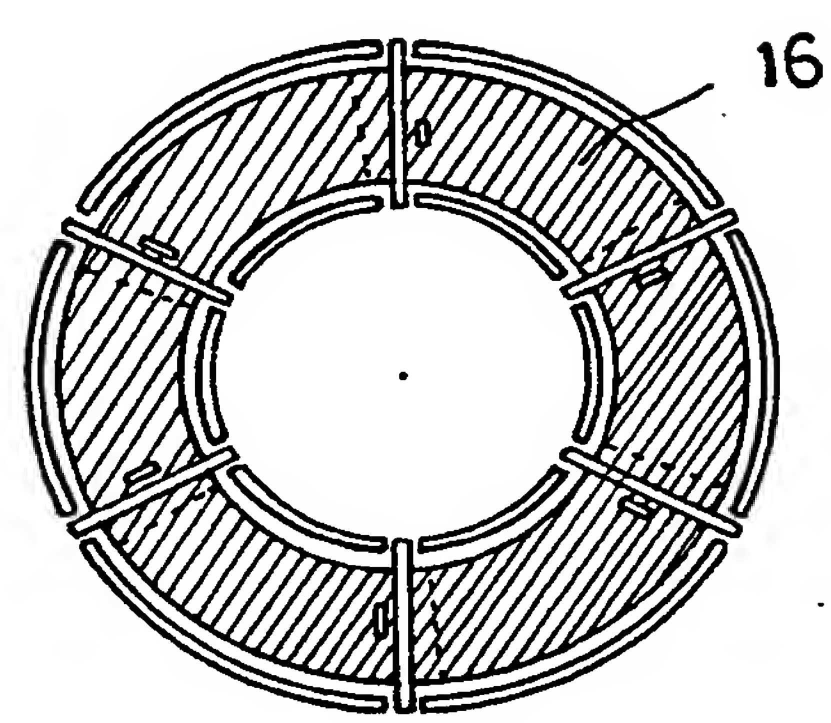

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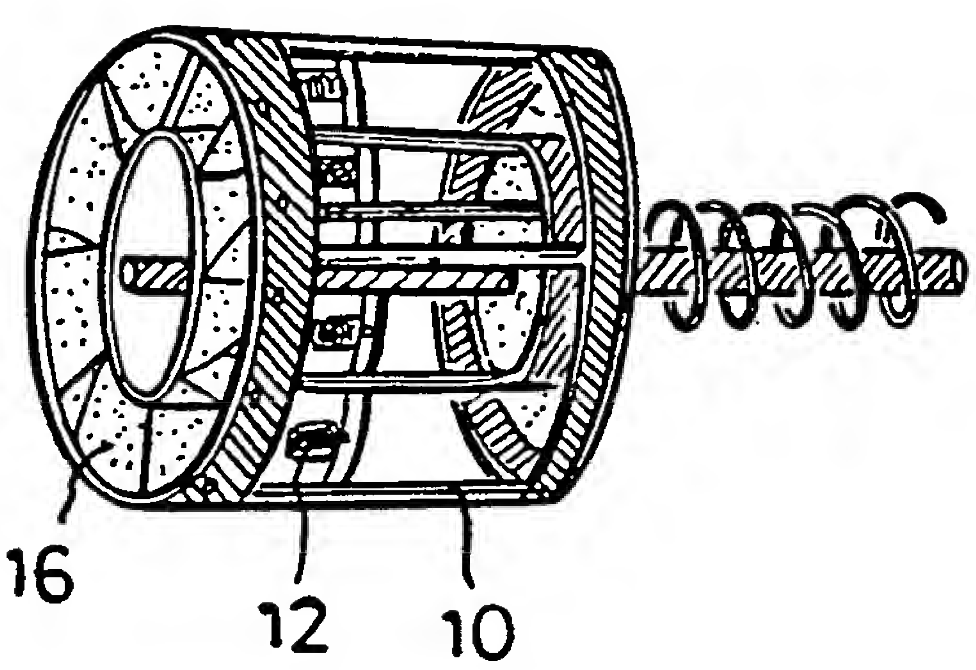

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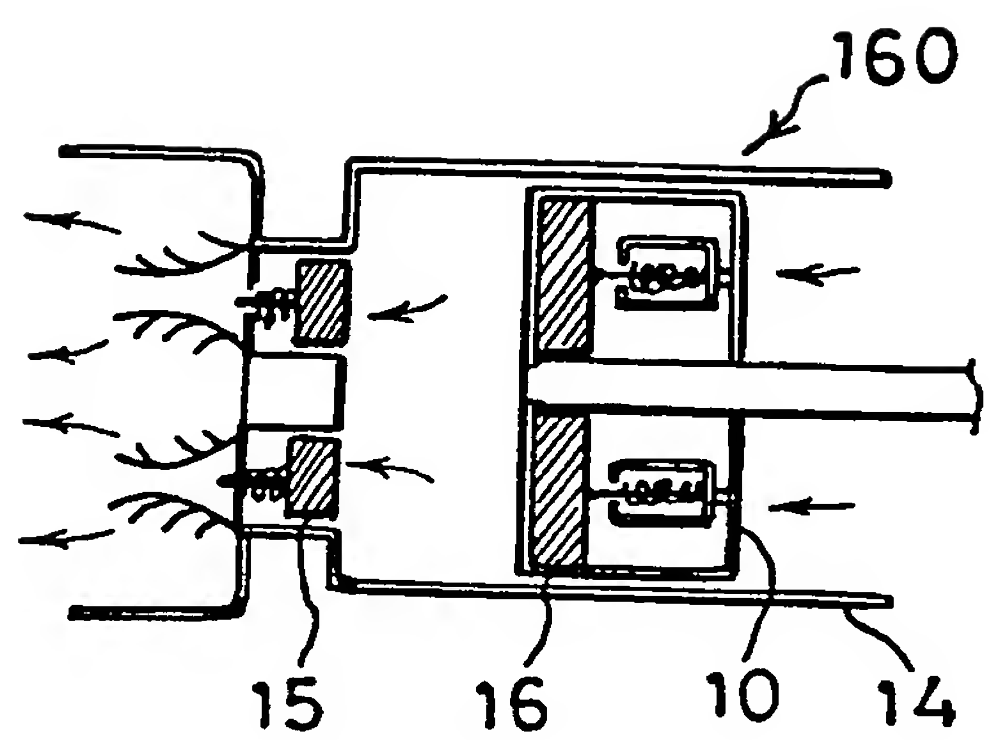

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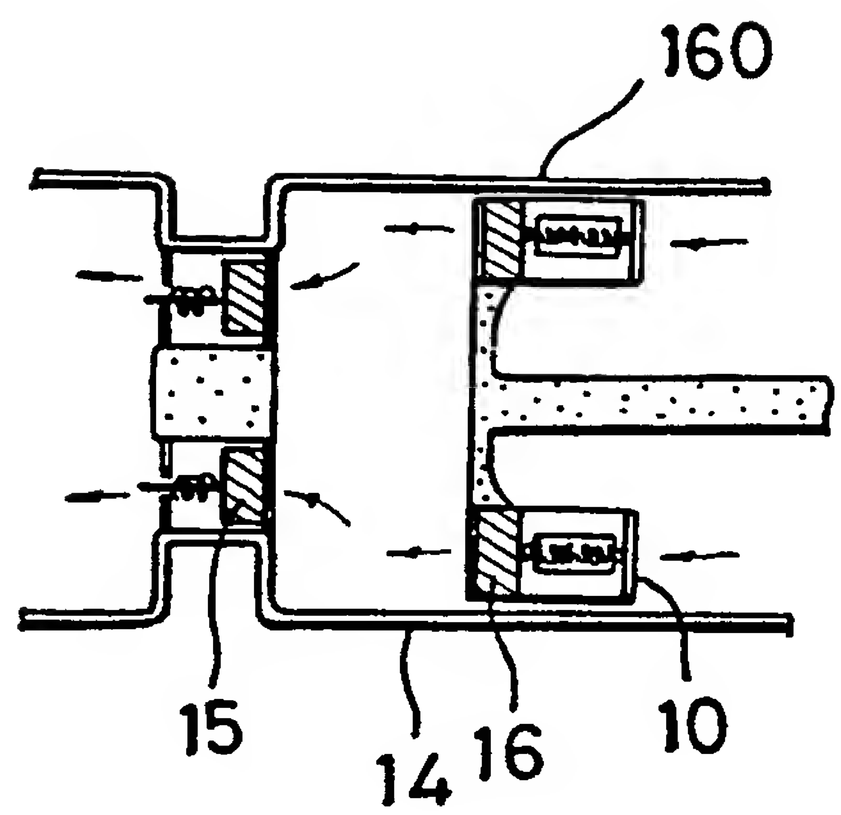

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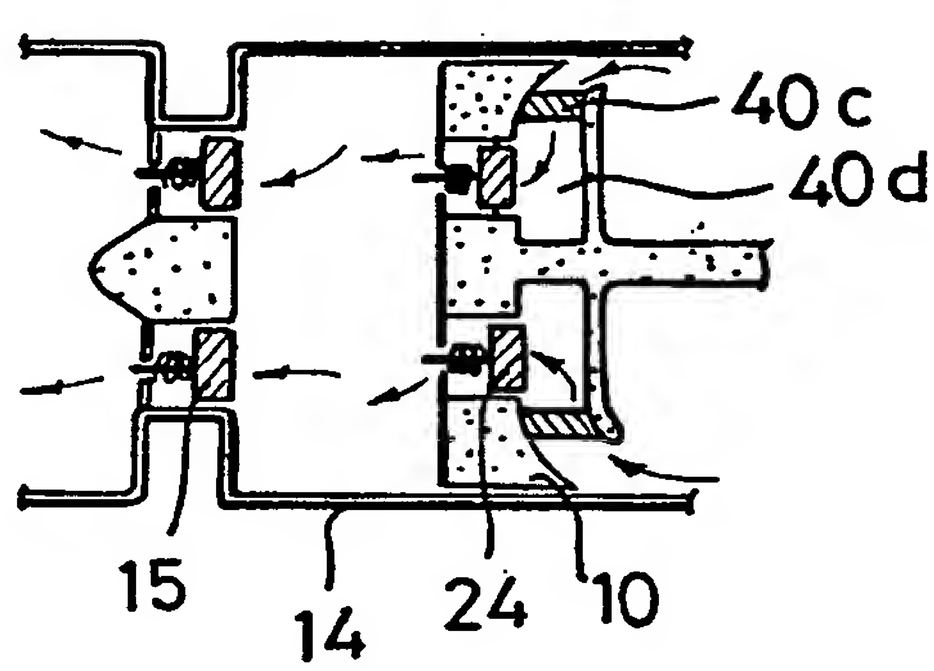

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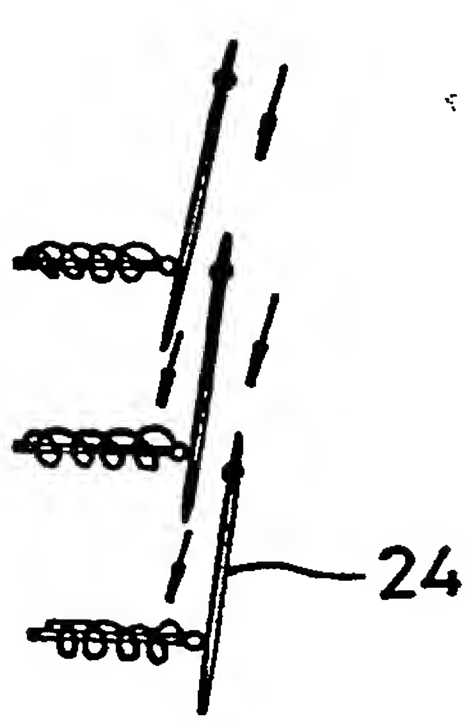

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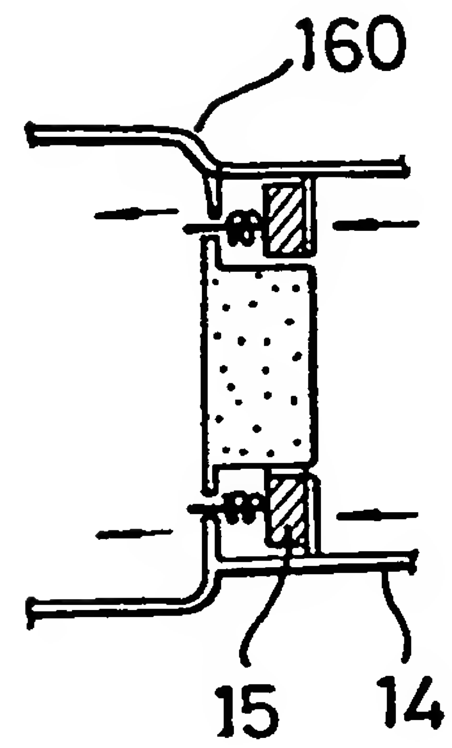
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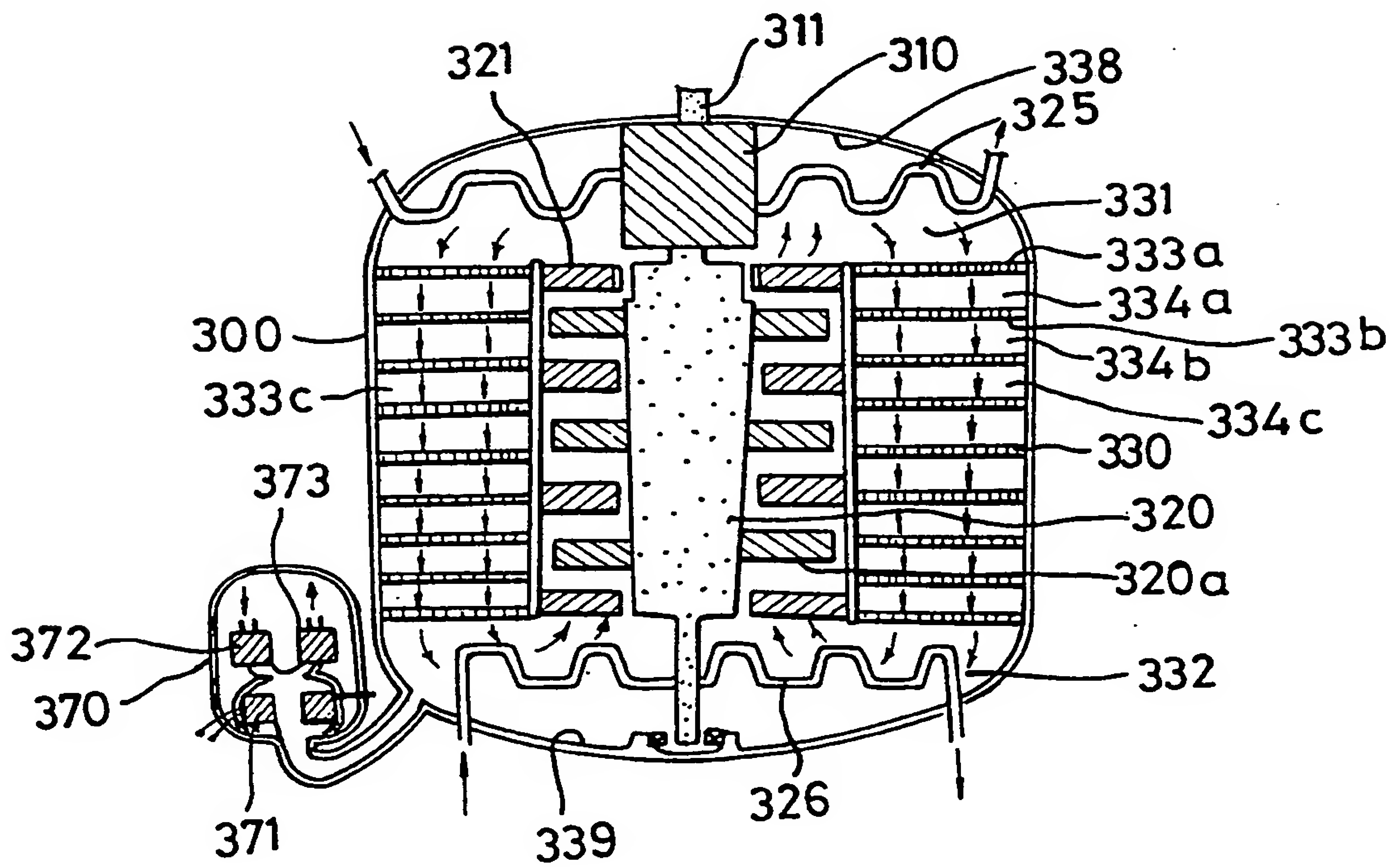
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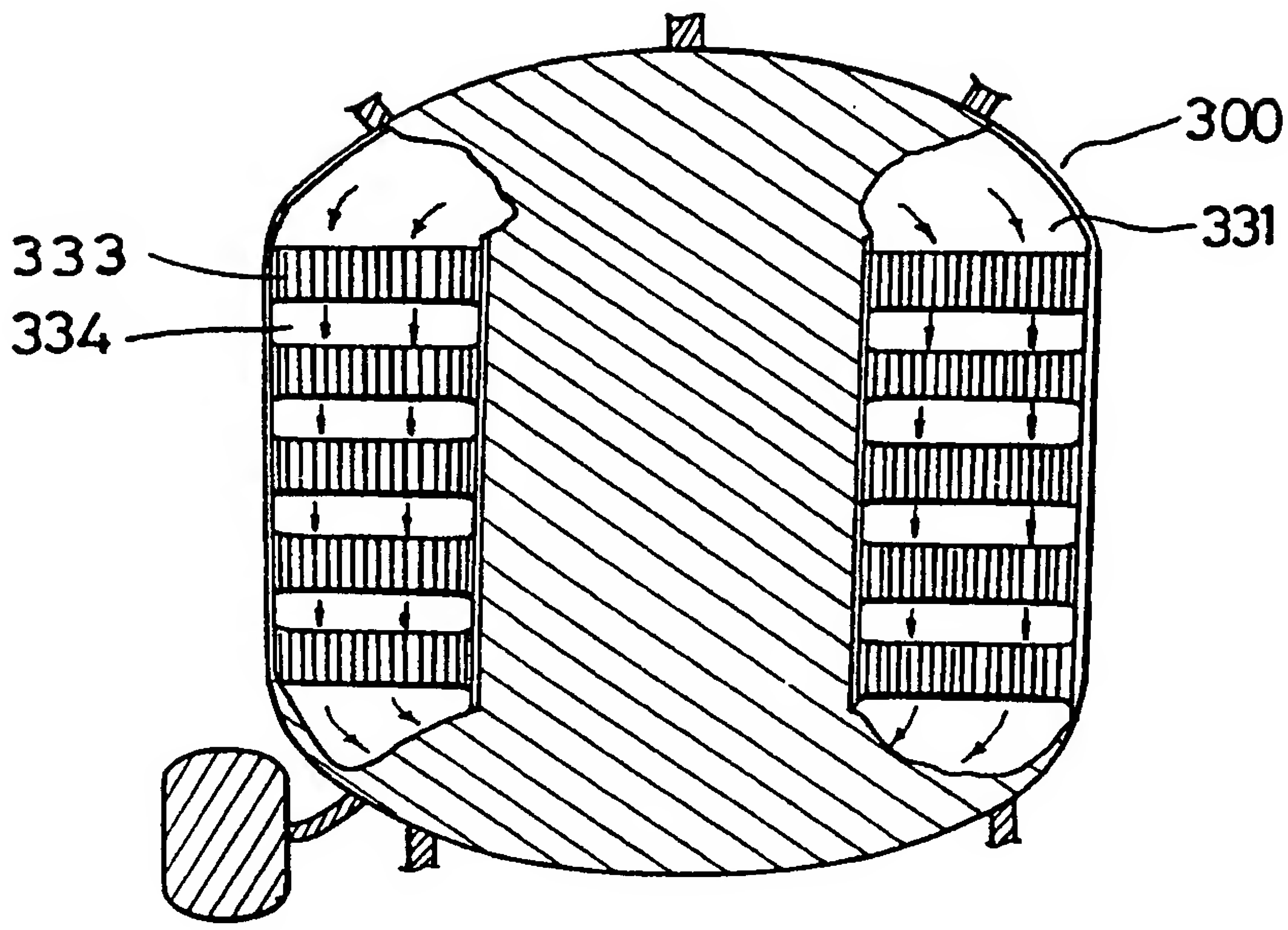
Fig.33



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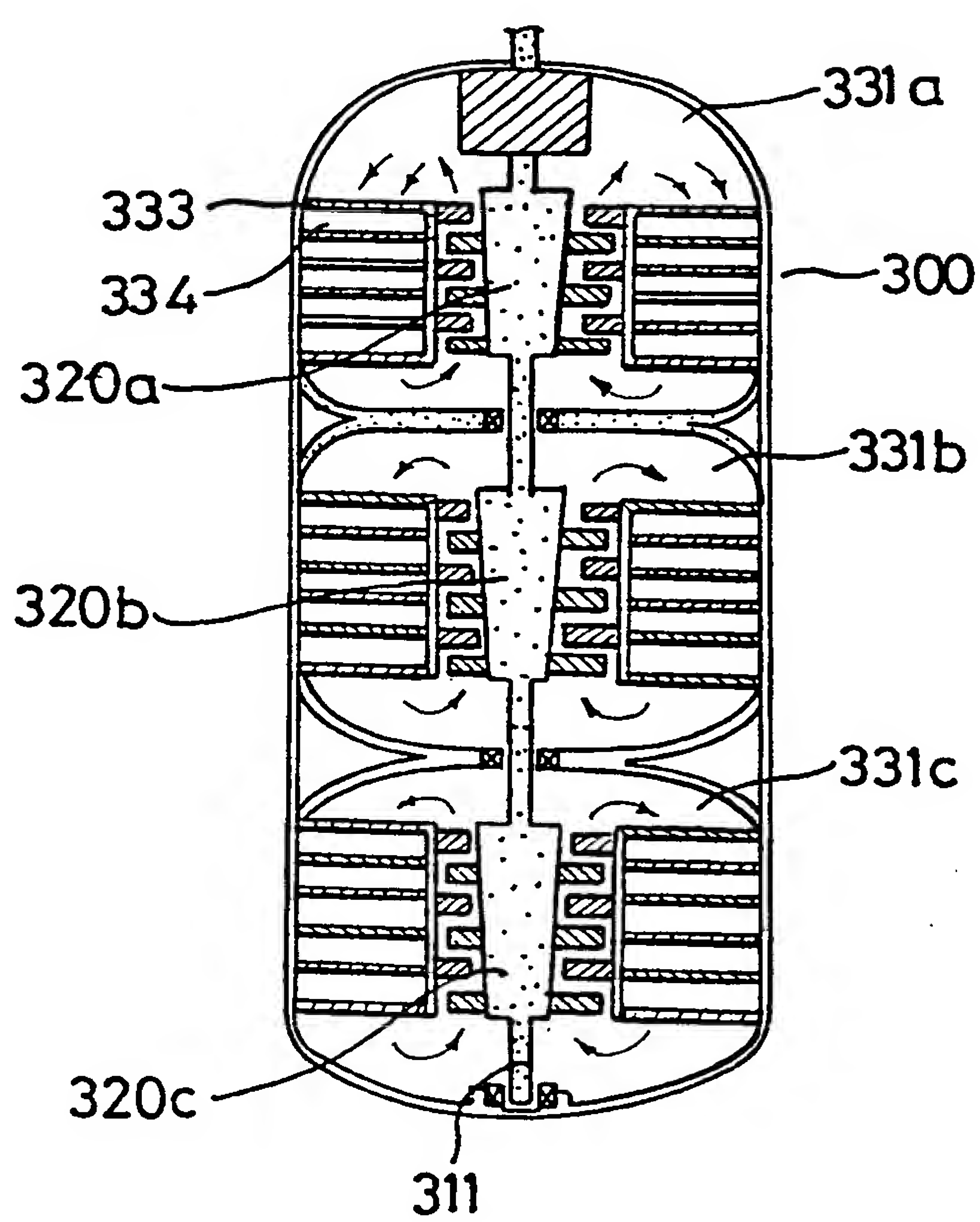

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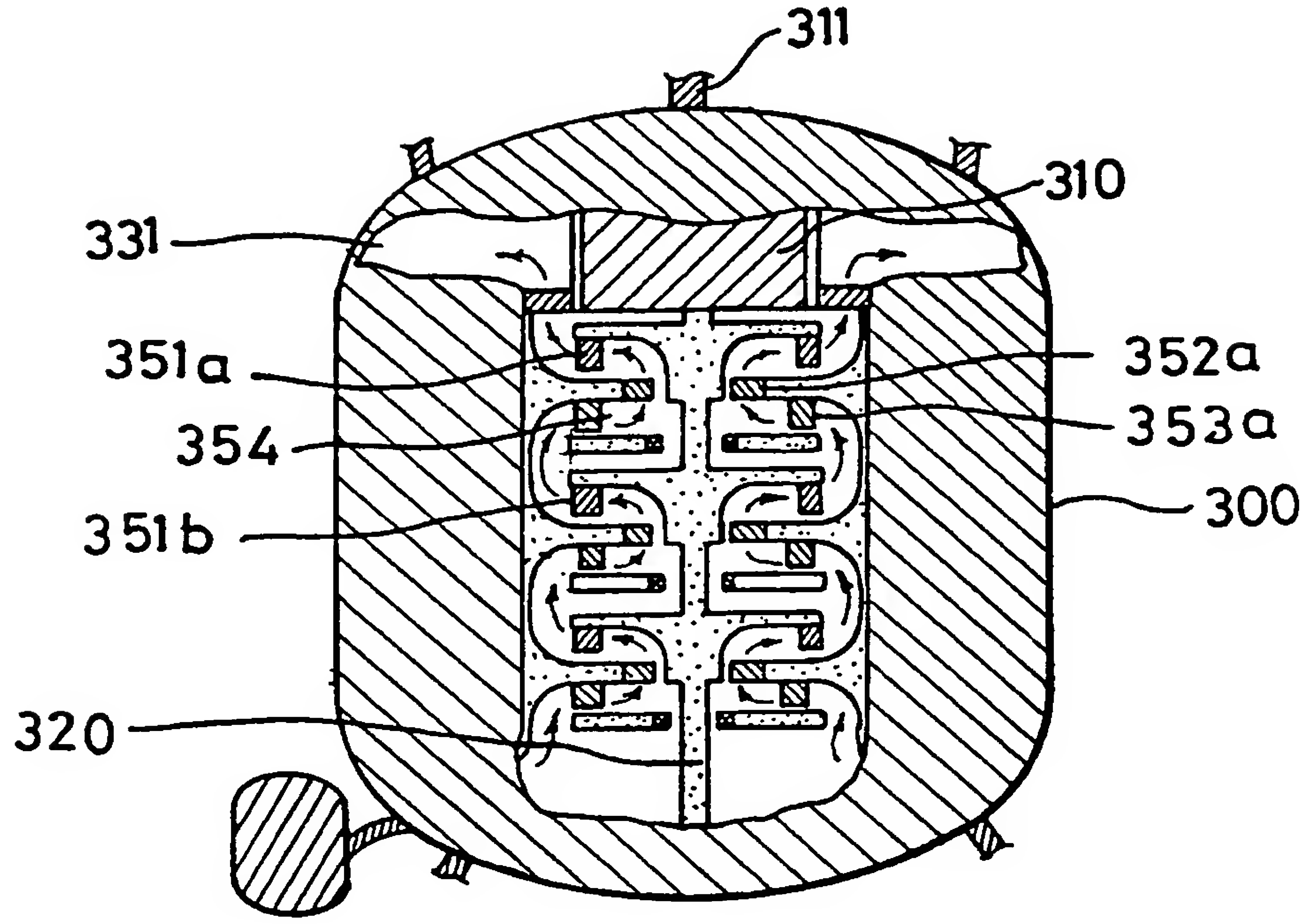
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Fig.36

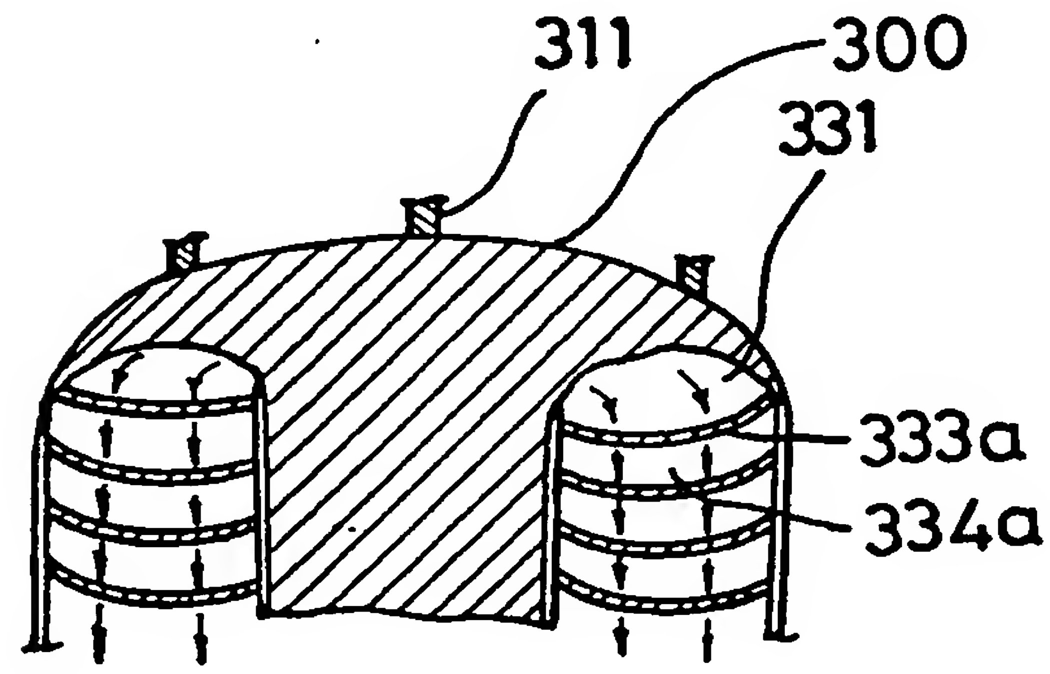
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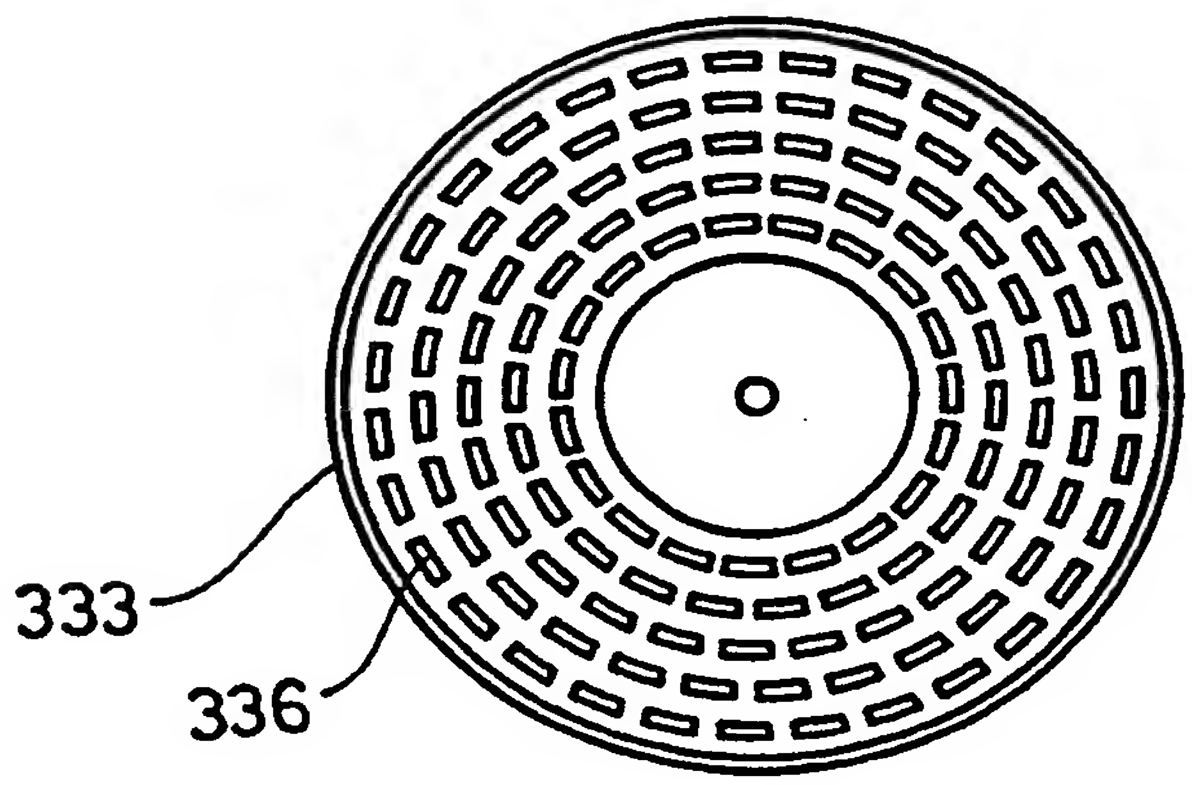
Fig.37



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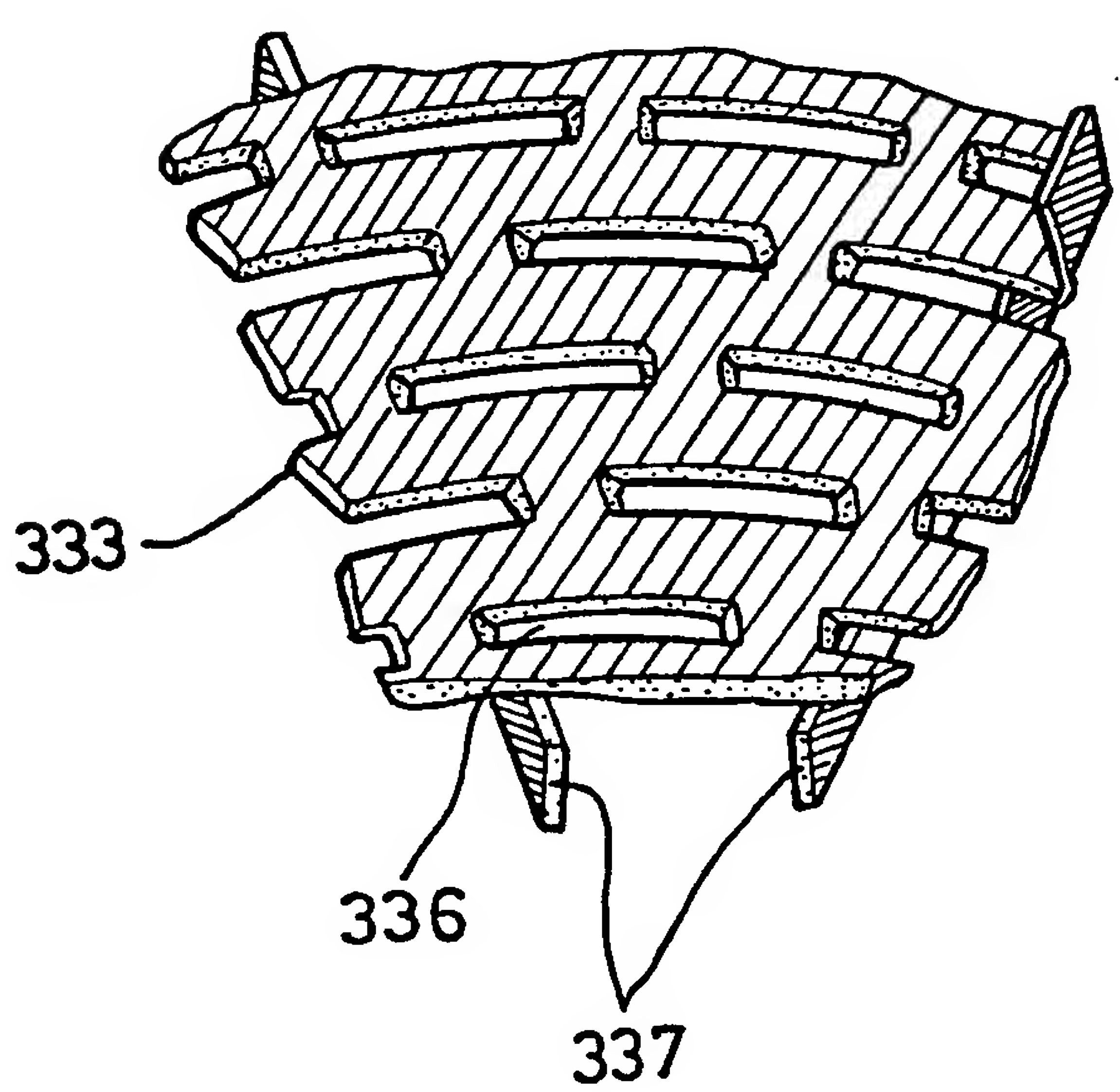

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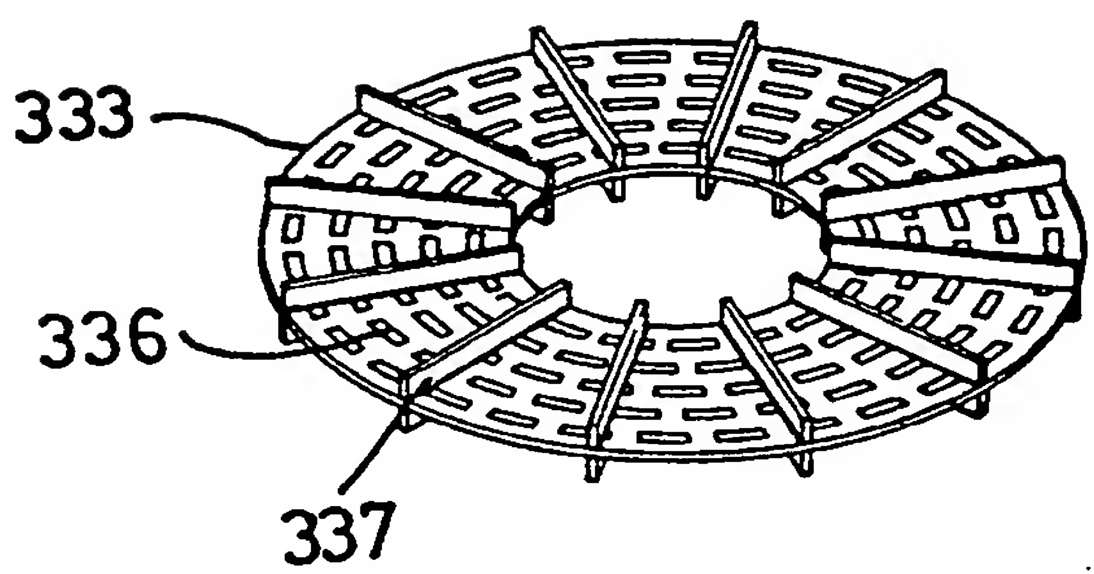

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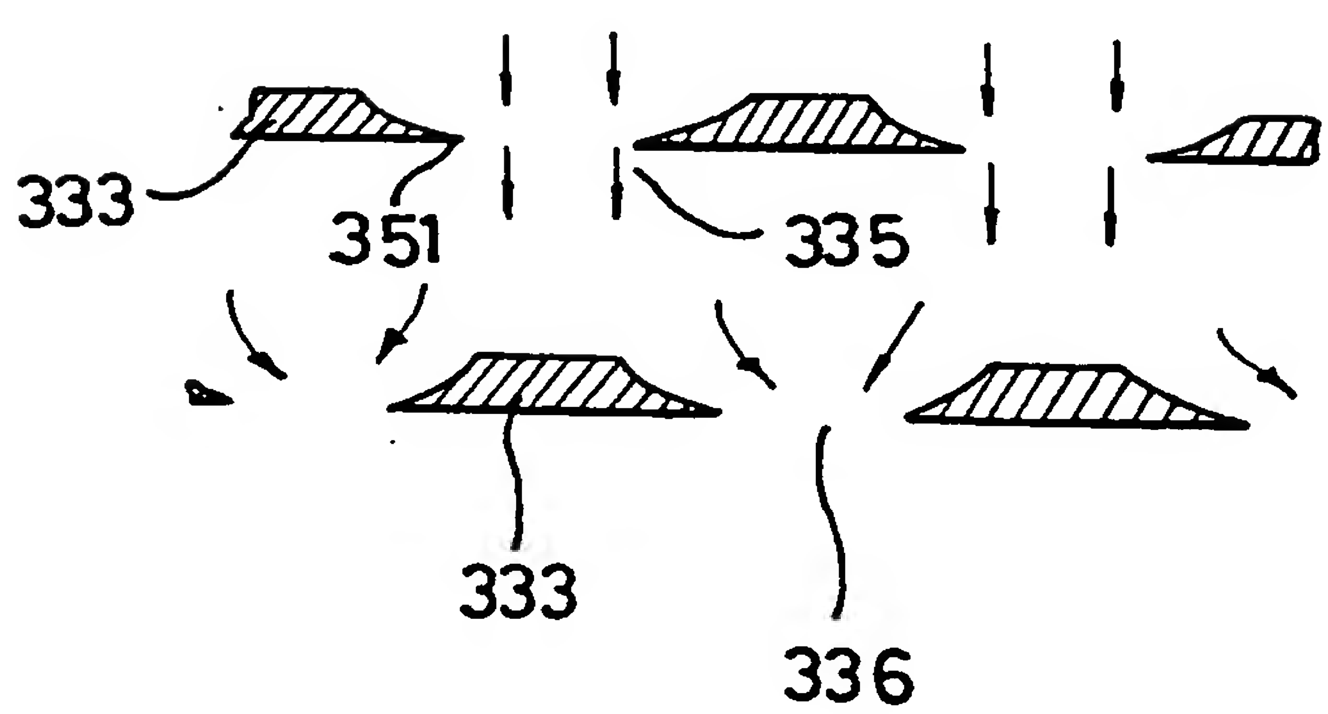

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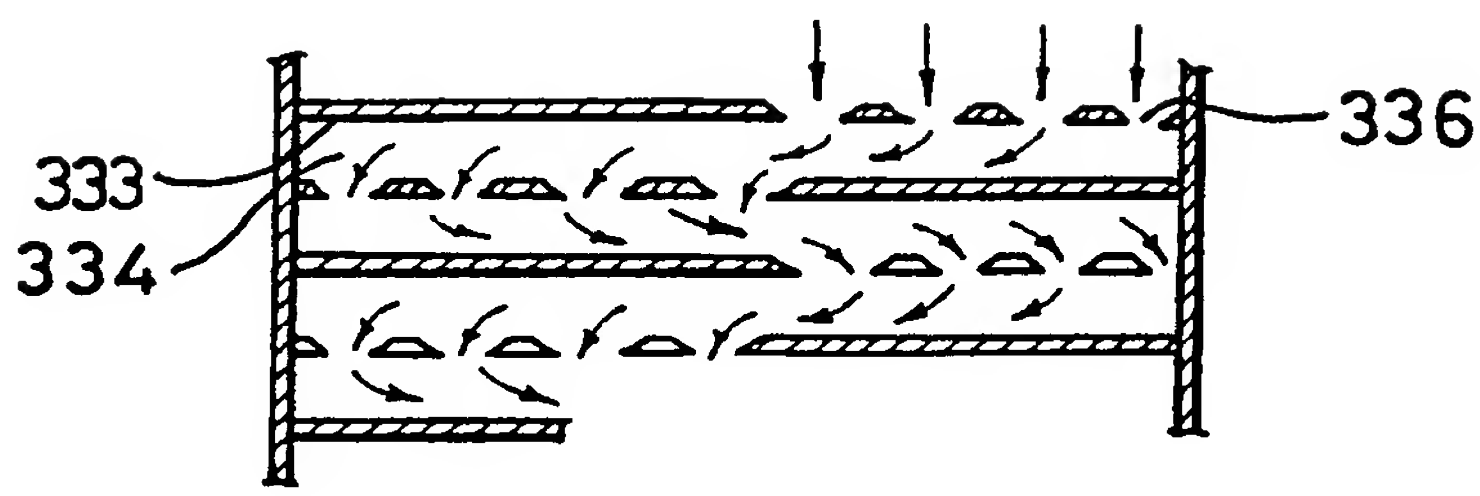

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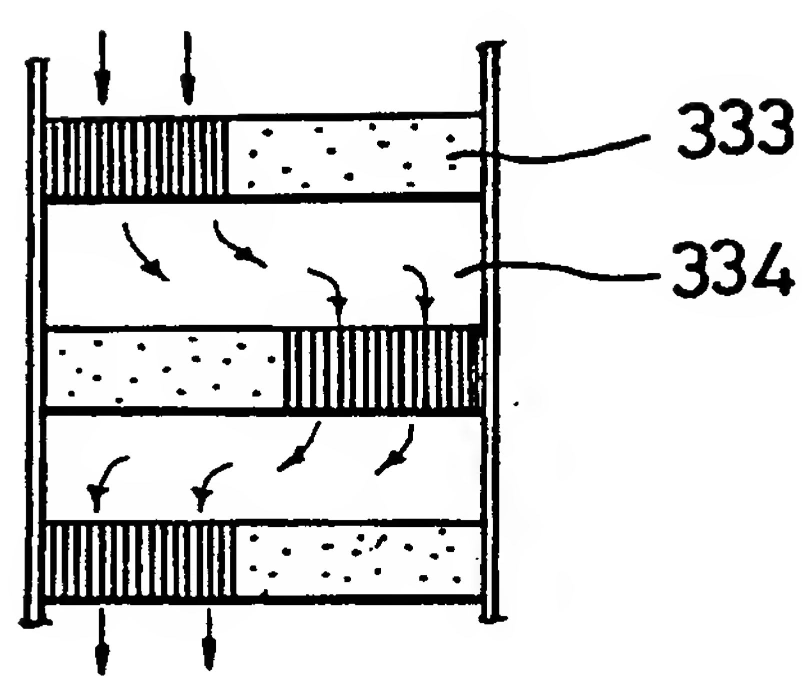

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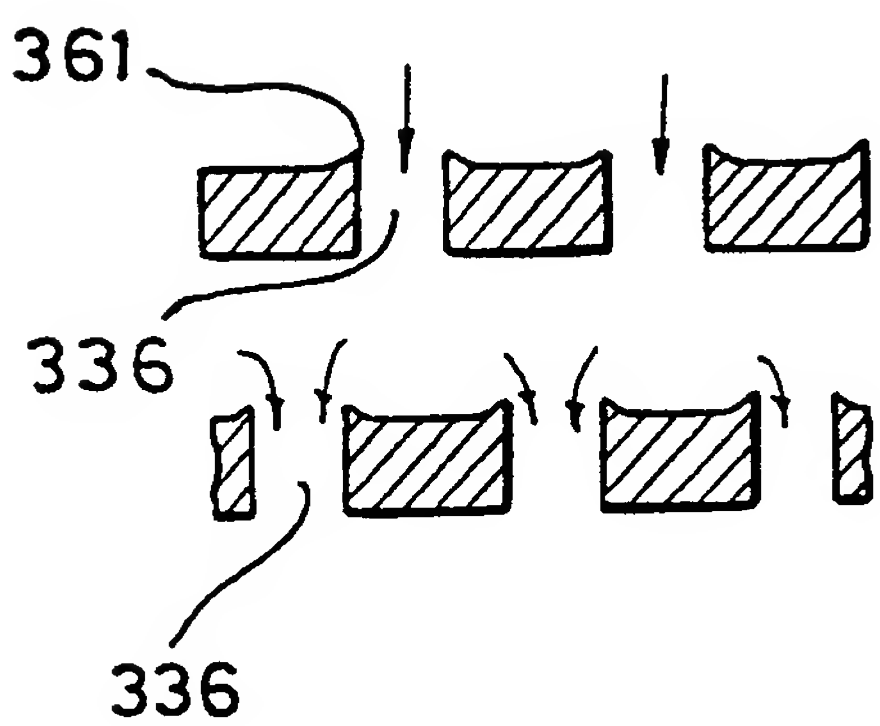

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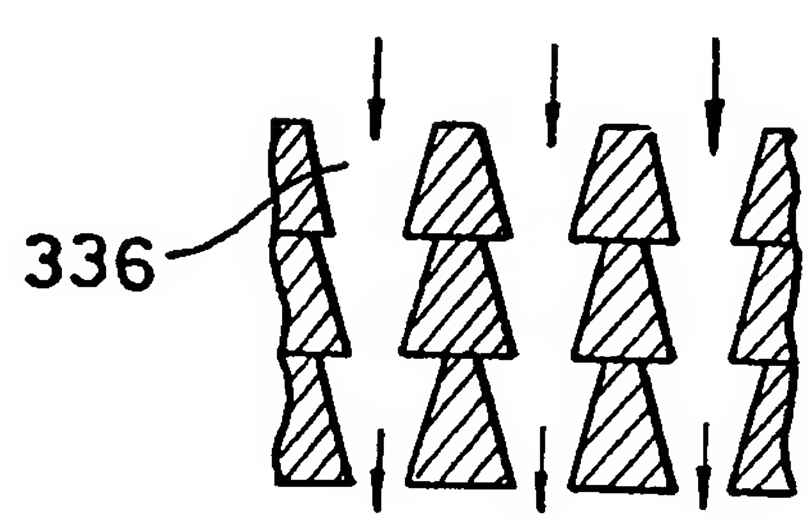

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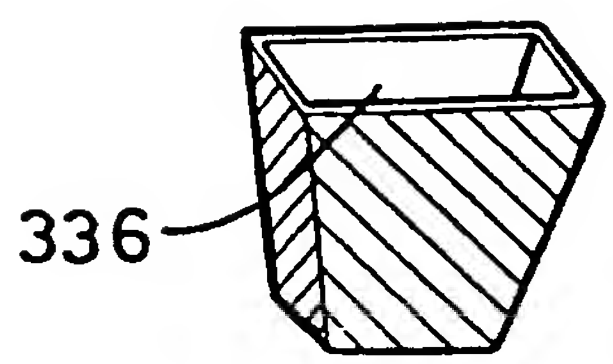

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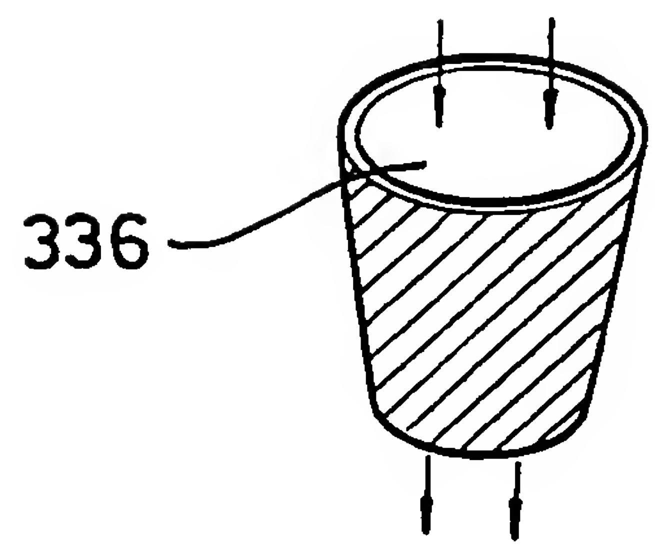

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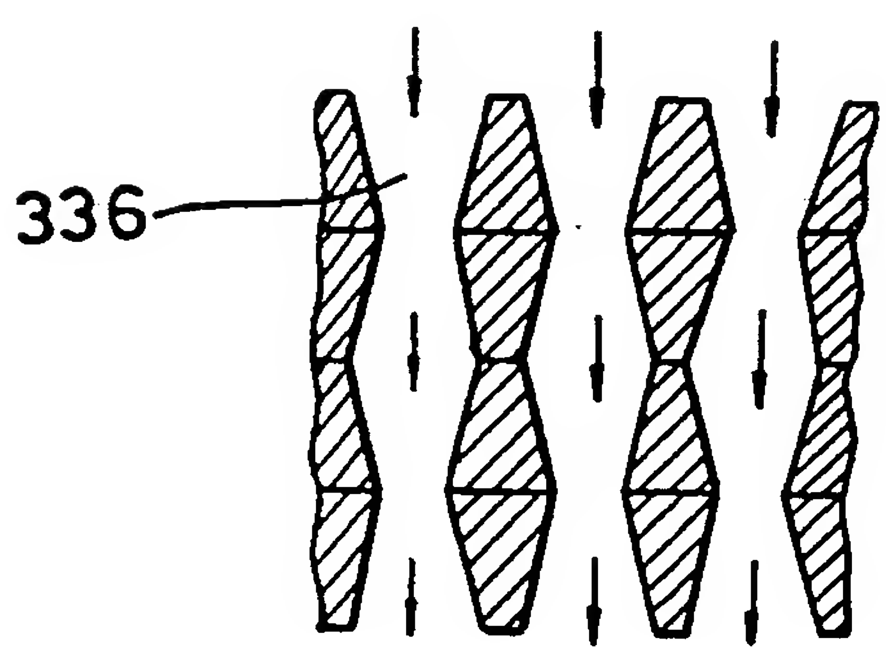

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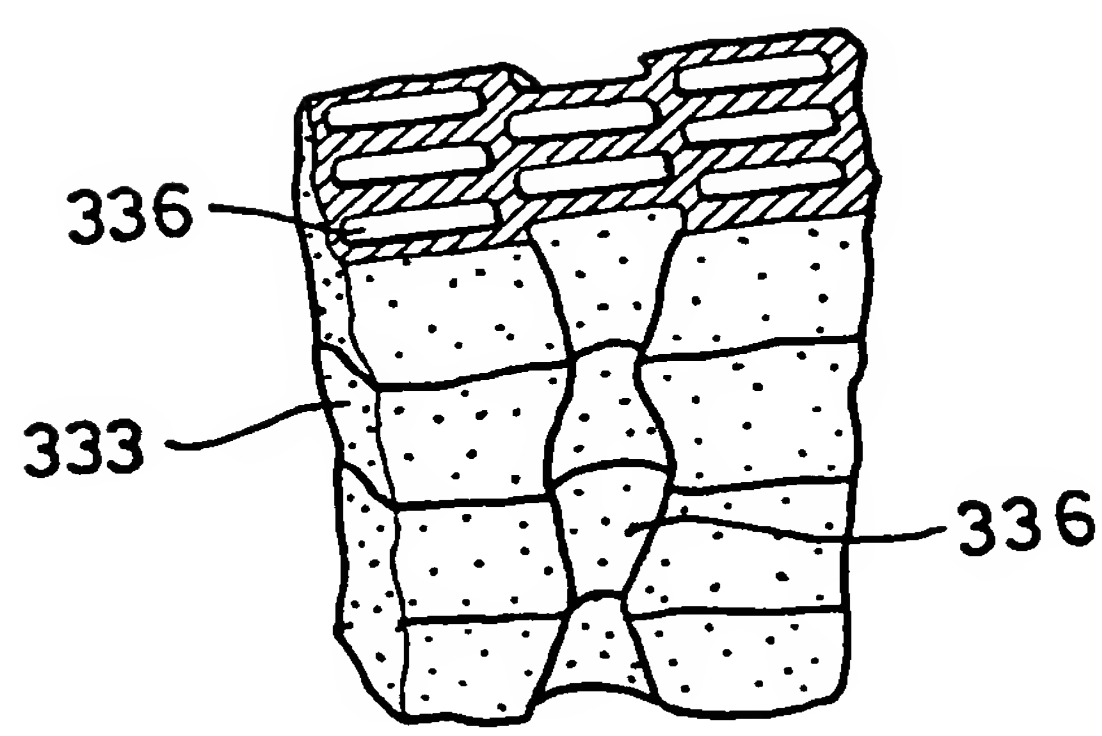

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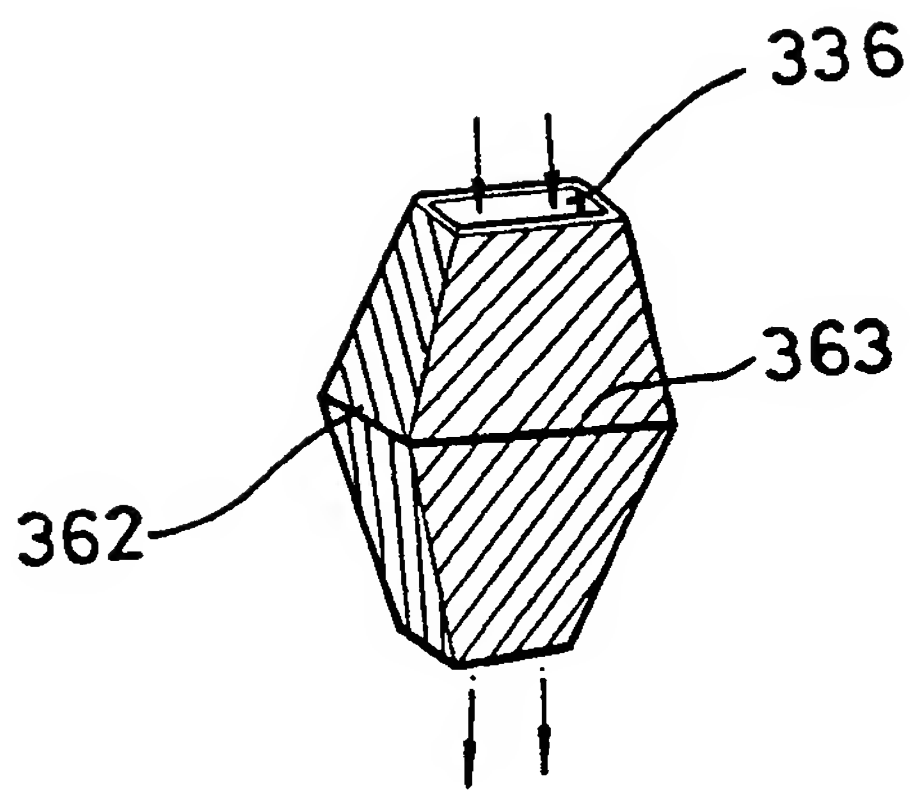

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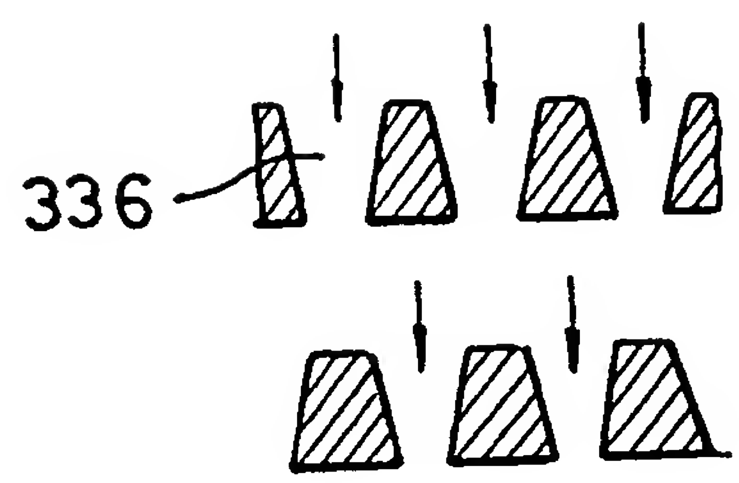

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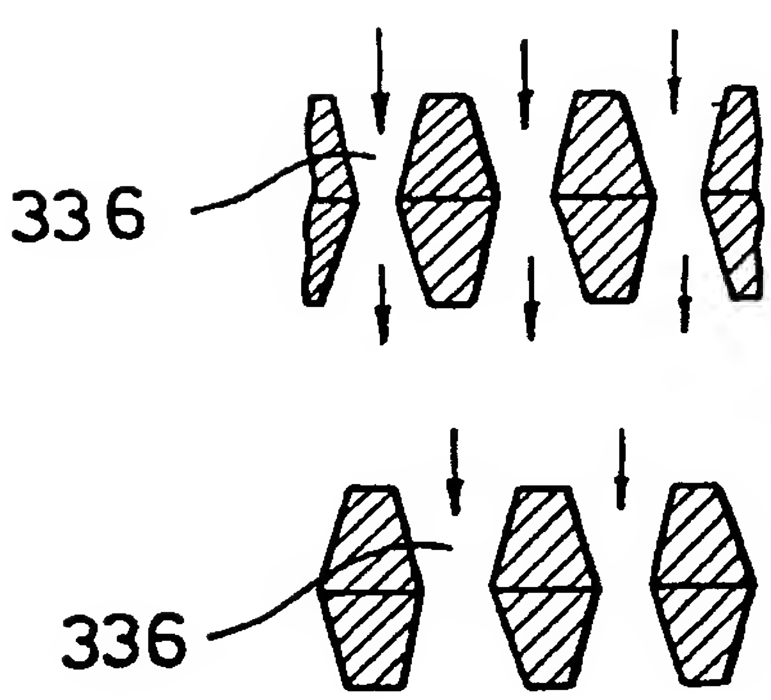

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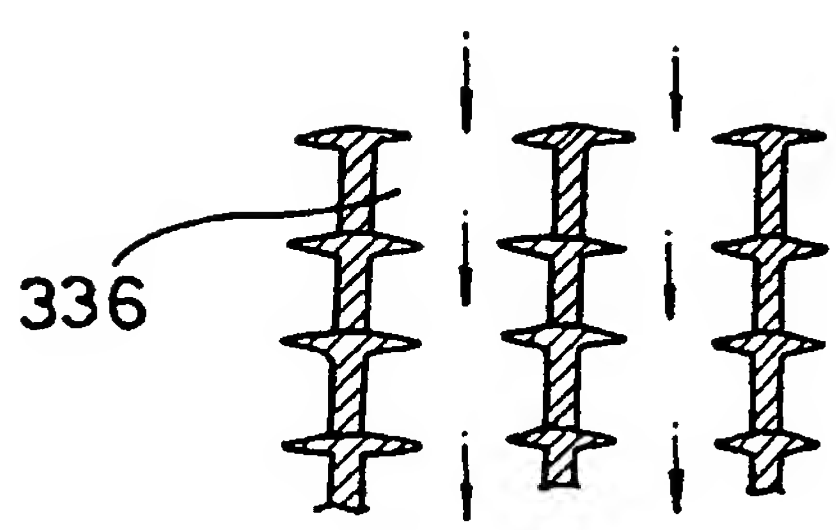

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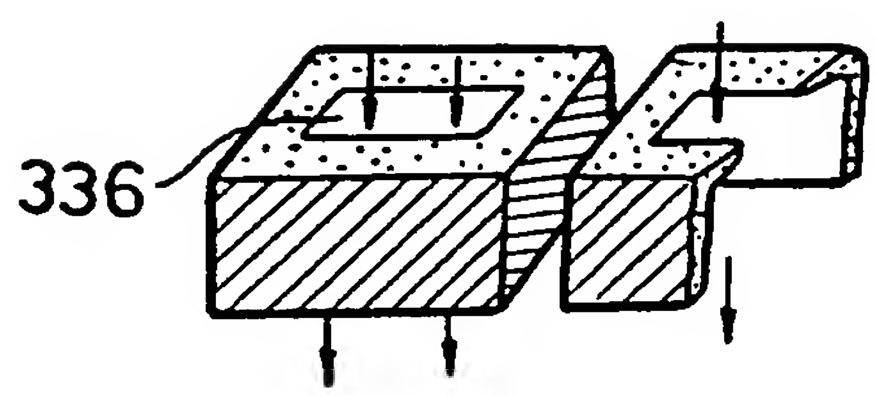

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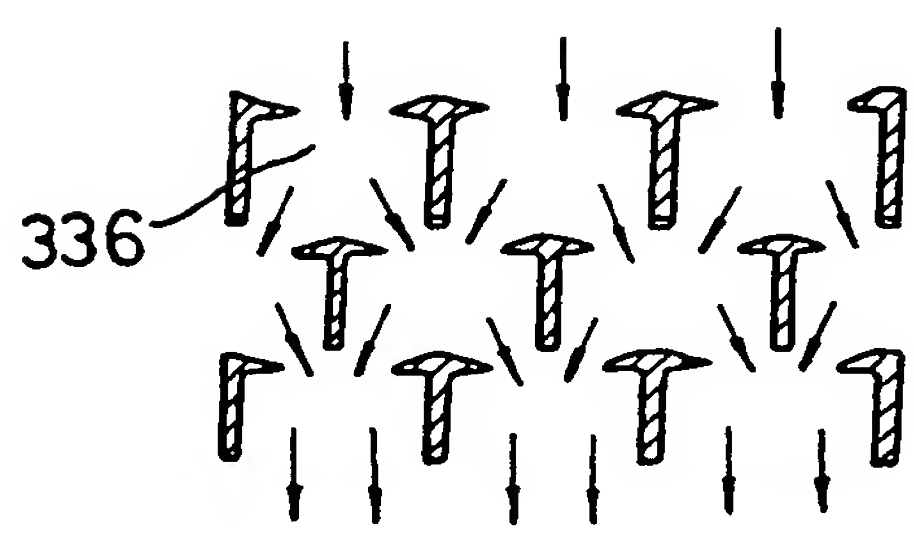

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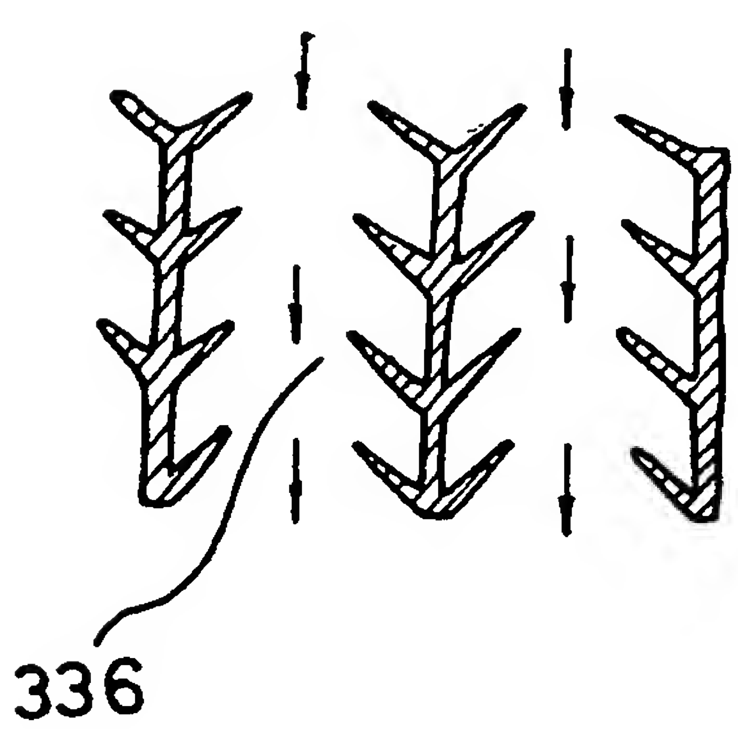

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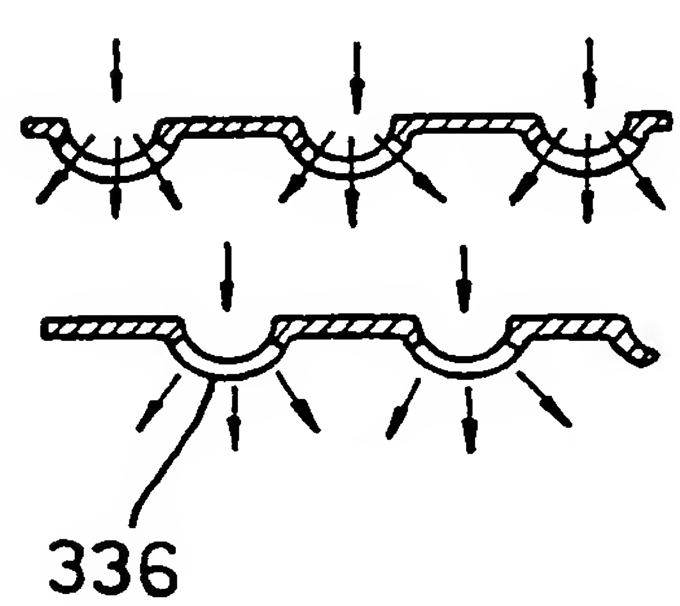

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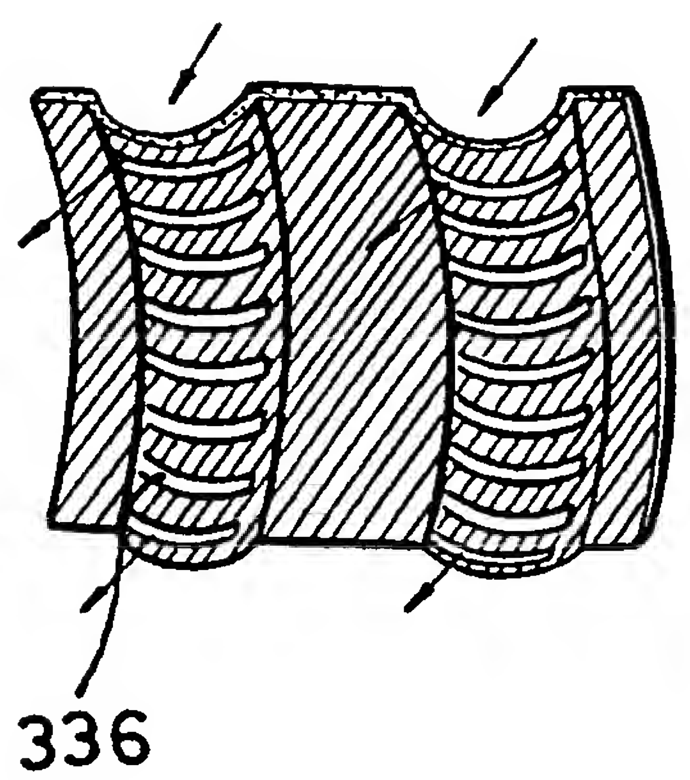

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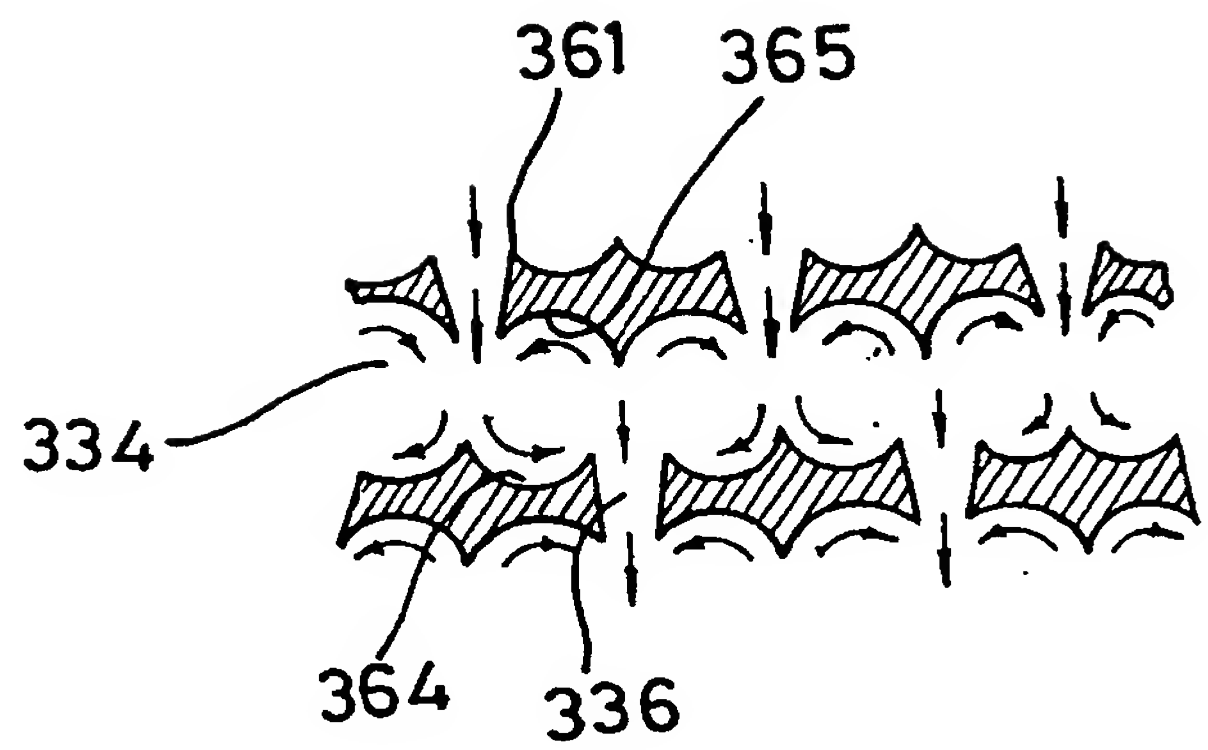

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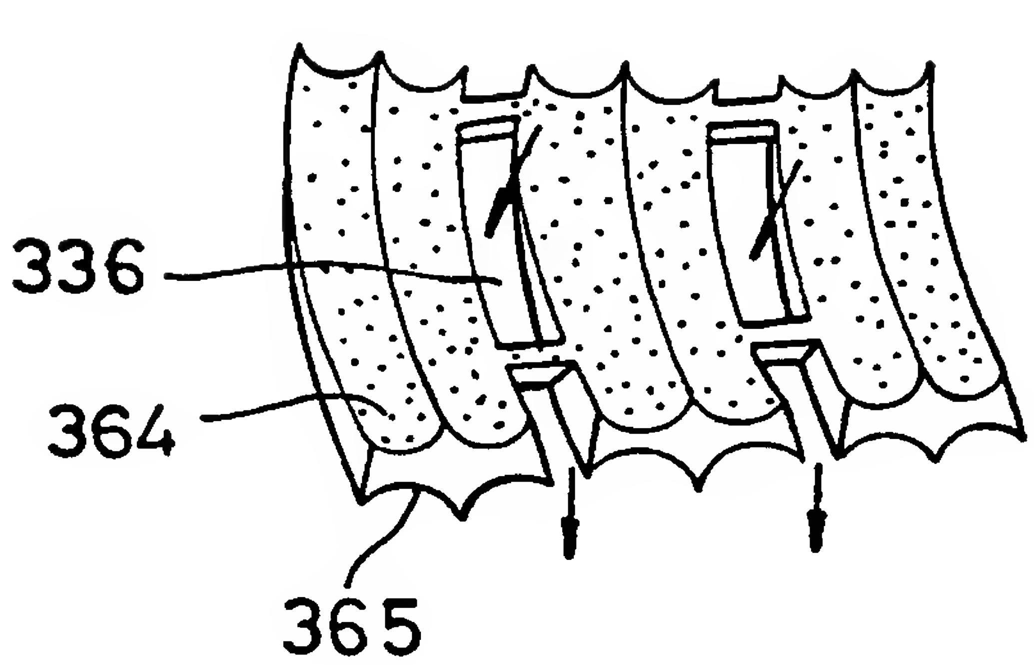

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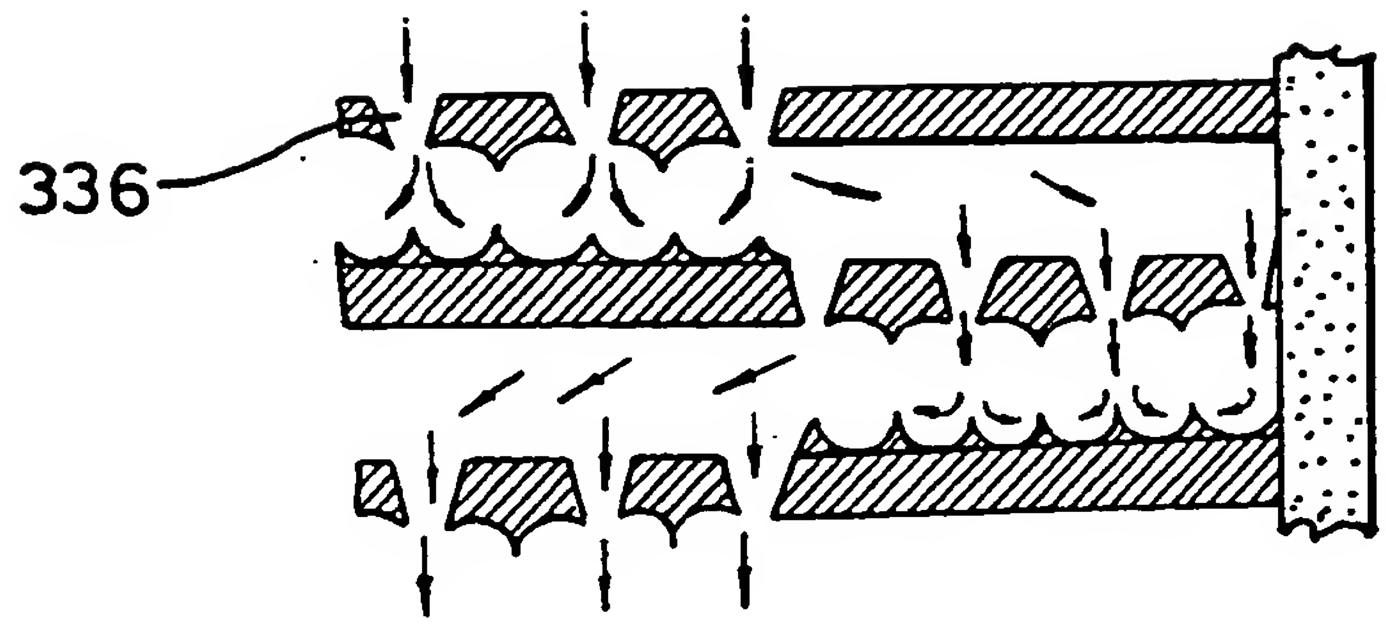

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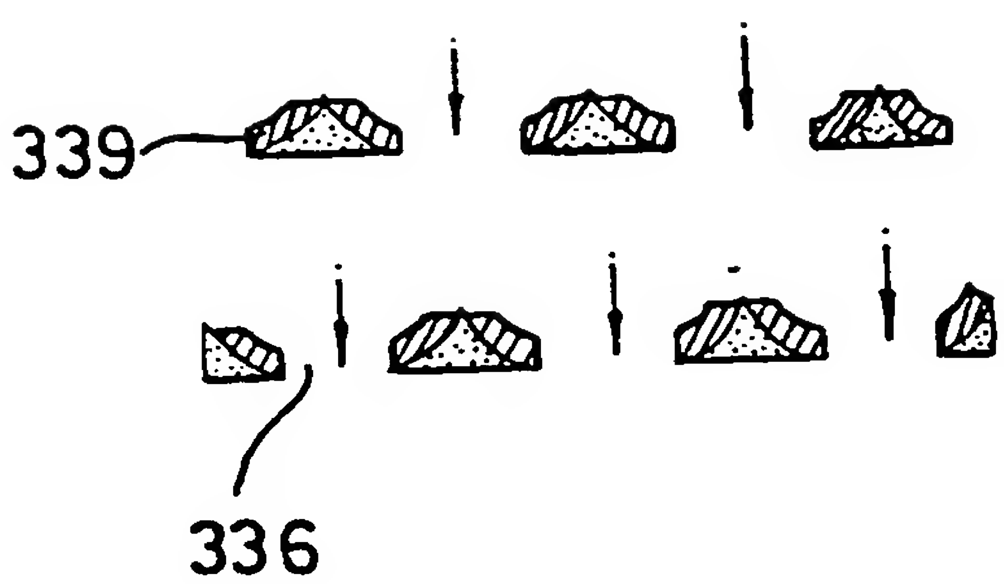

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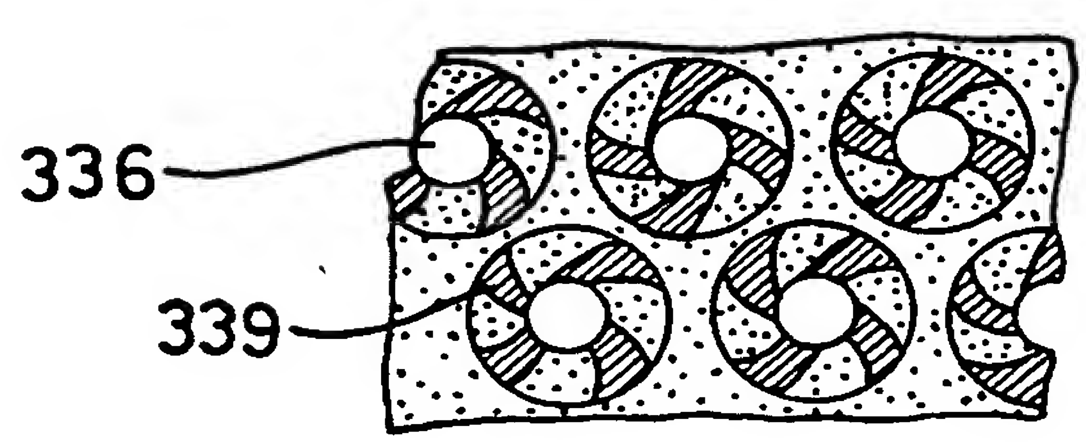

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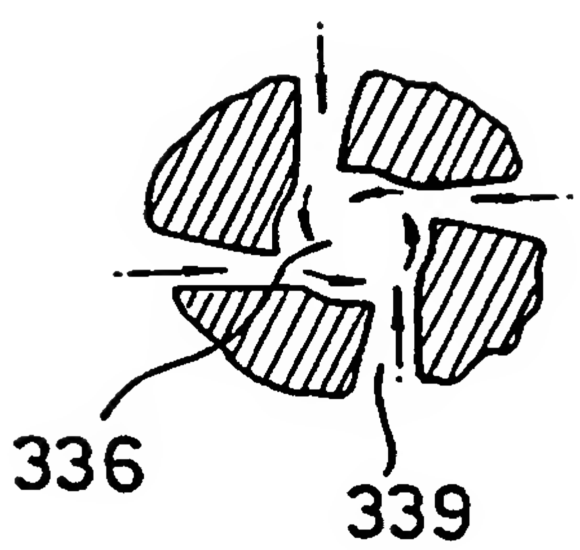

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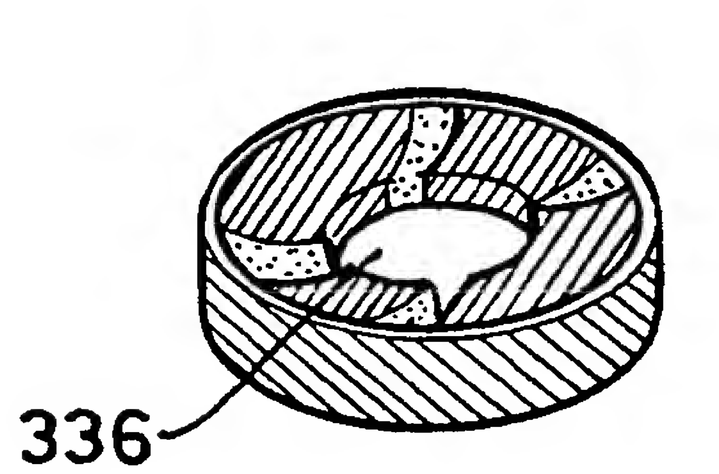

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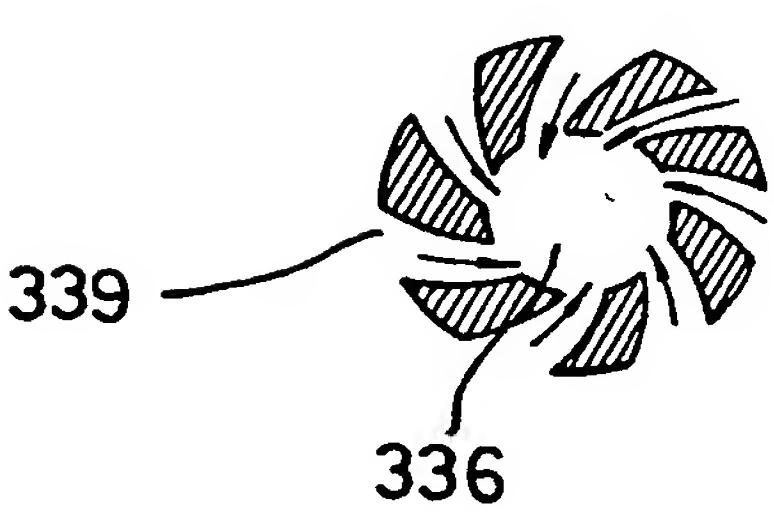

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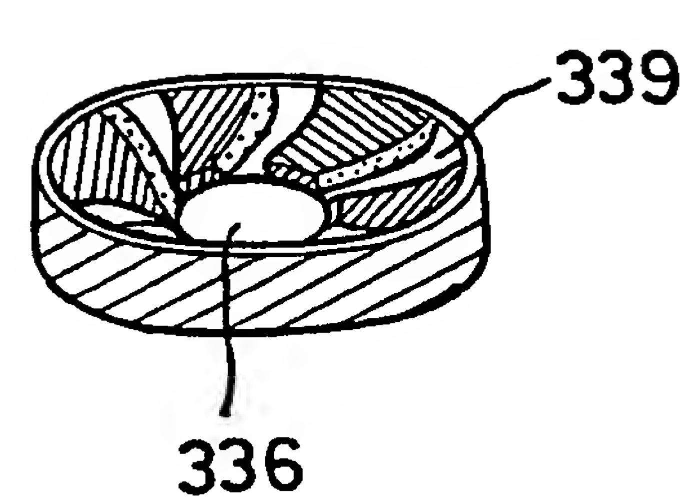

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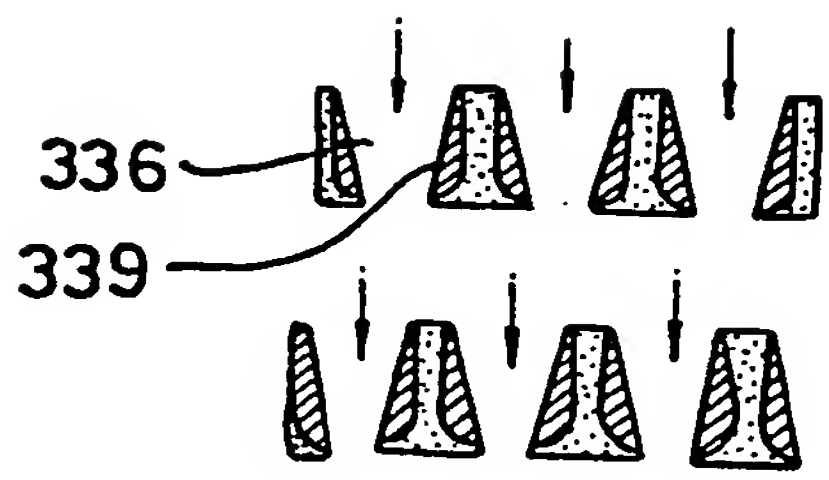

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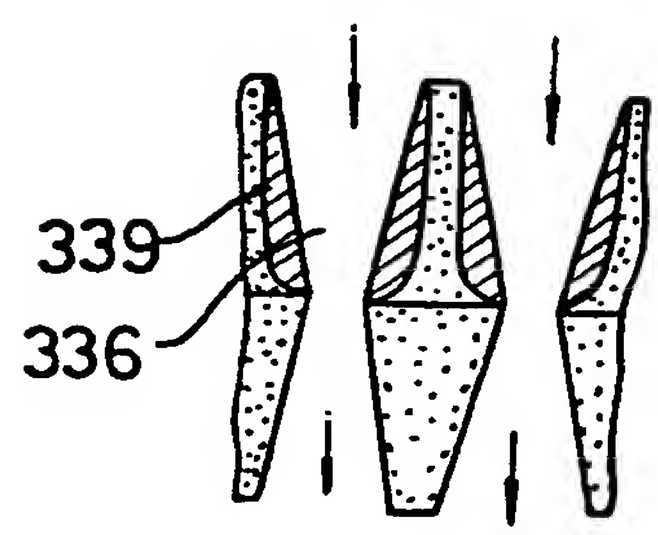

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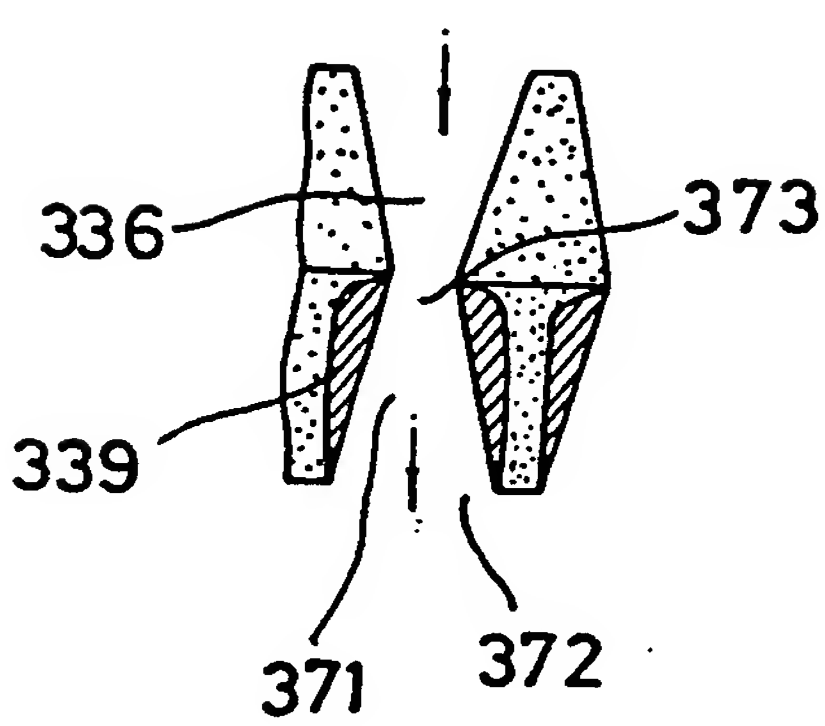

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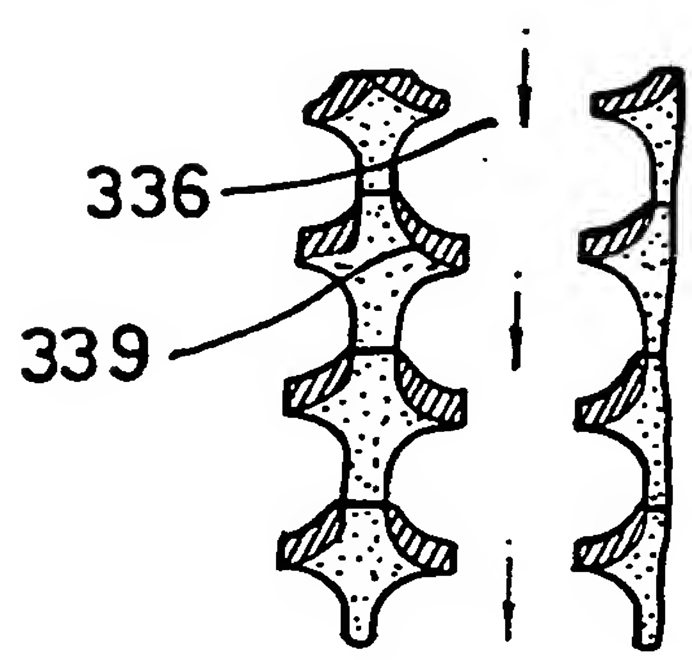

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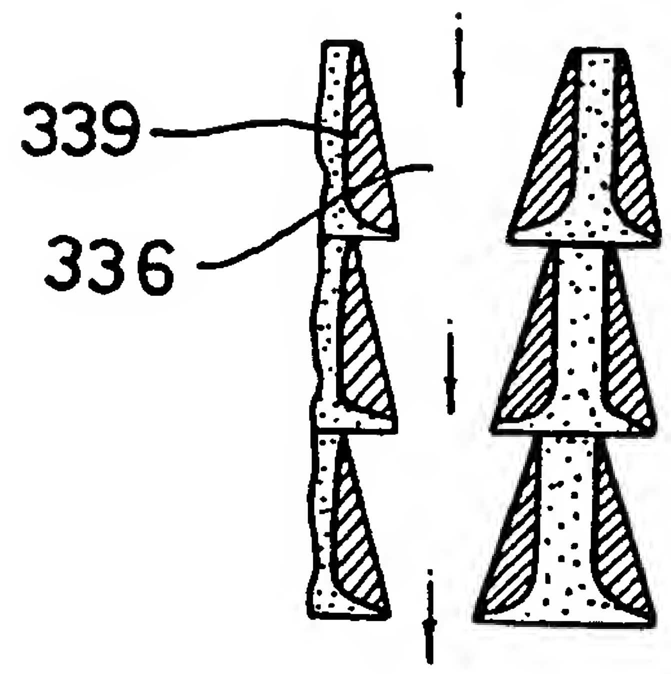

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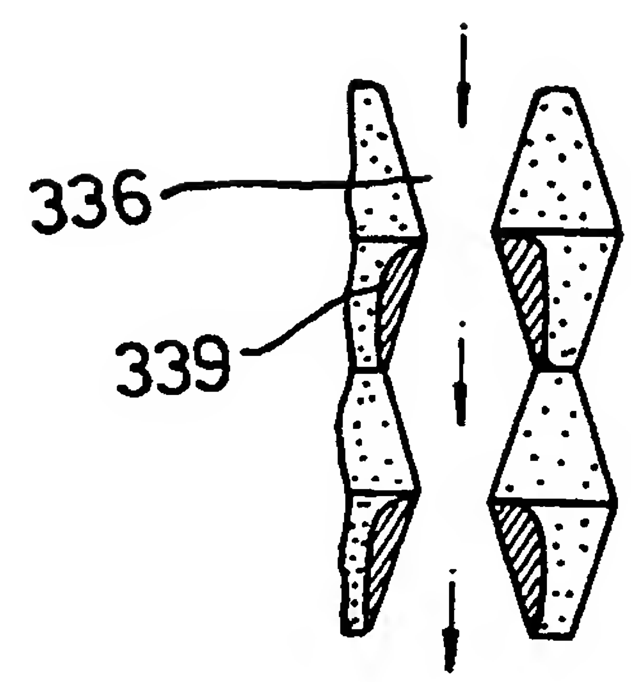

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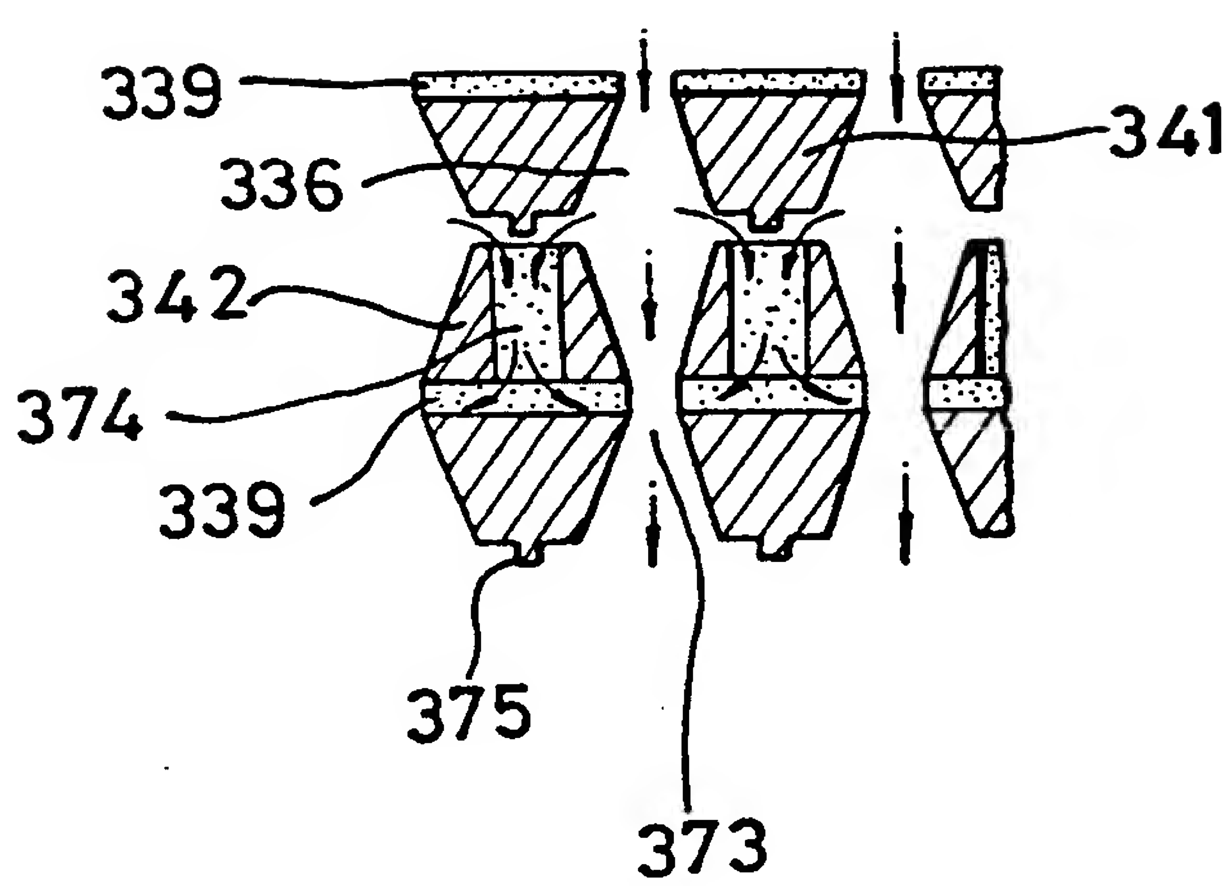

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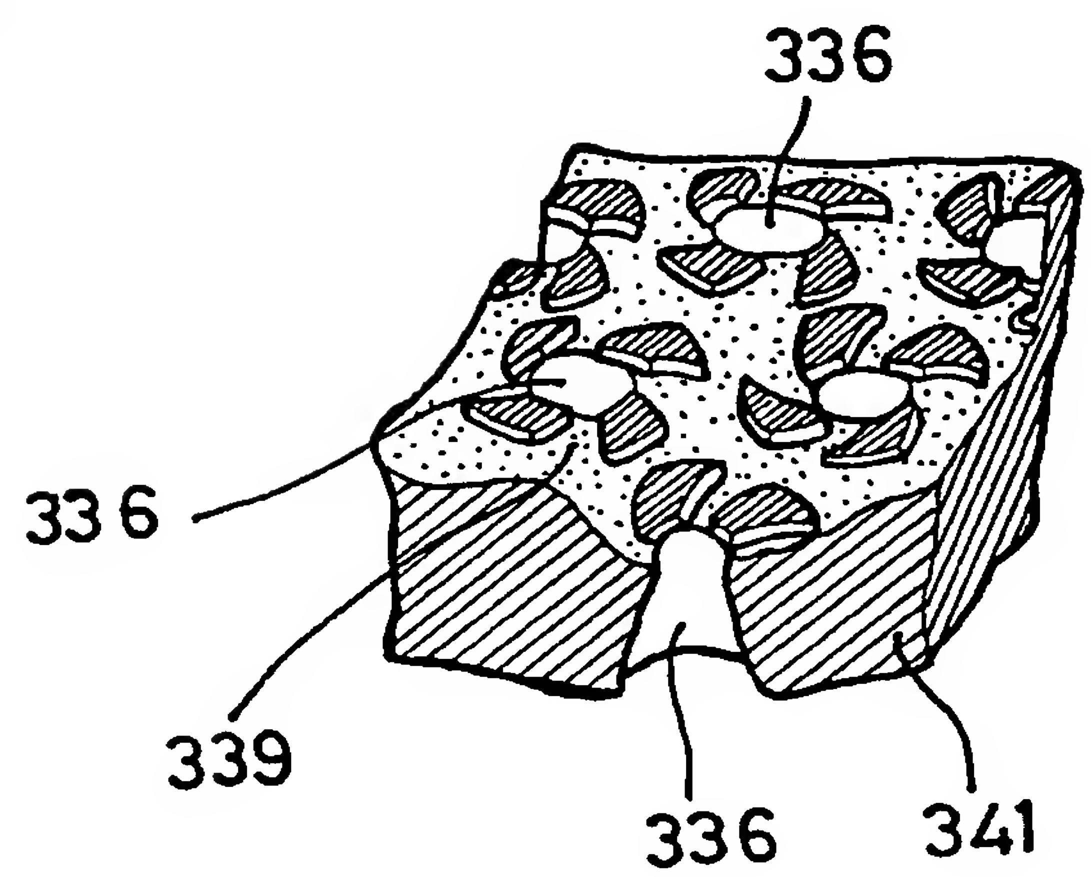

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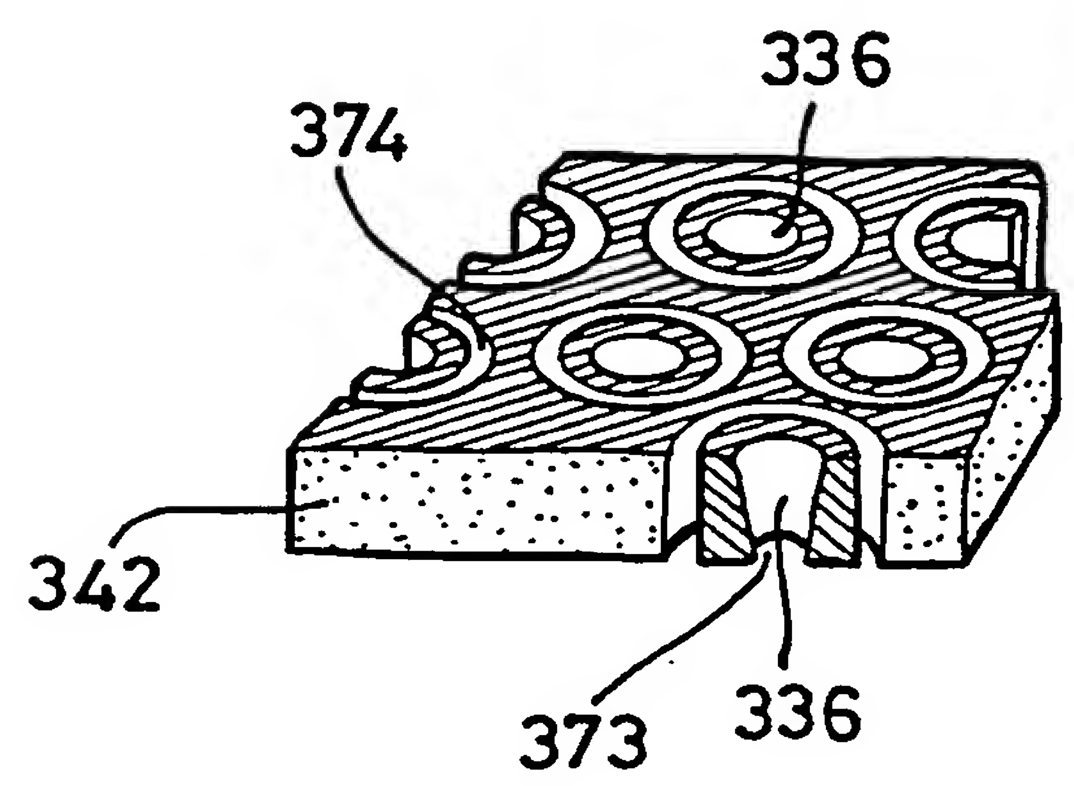

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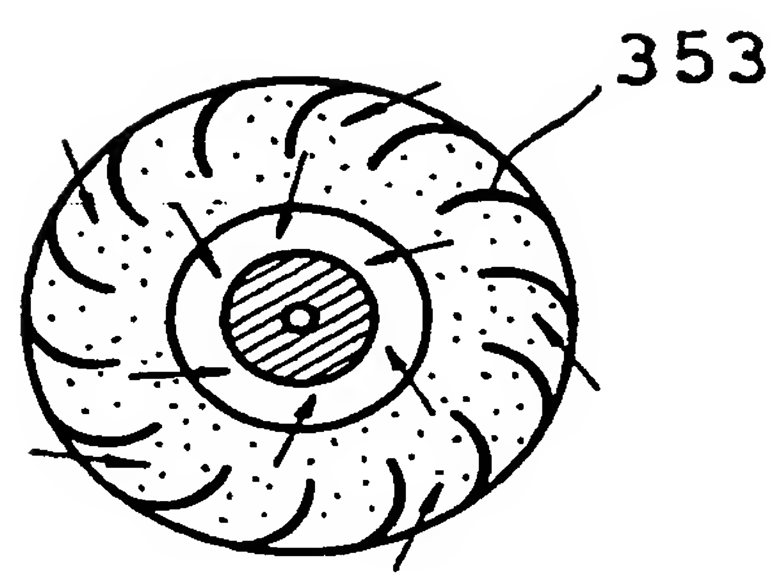

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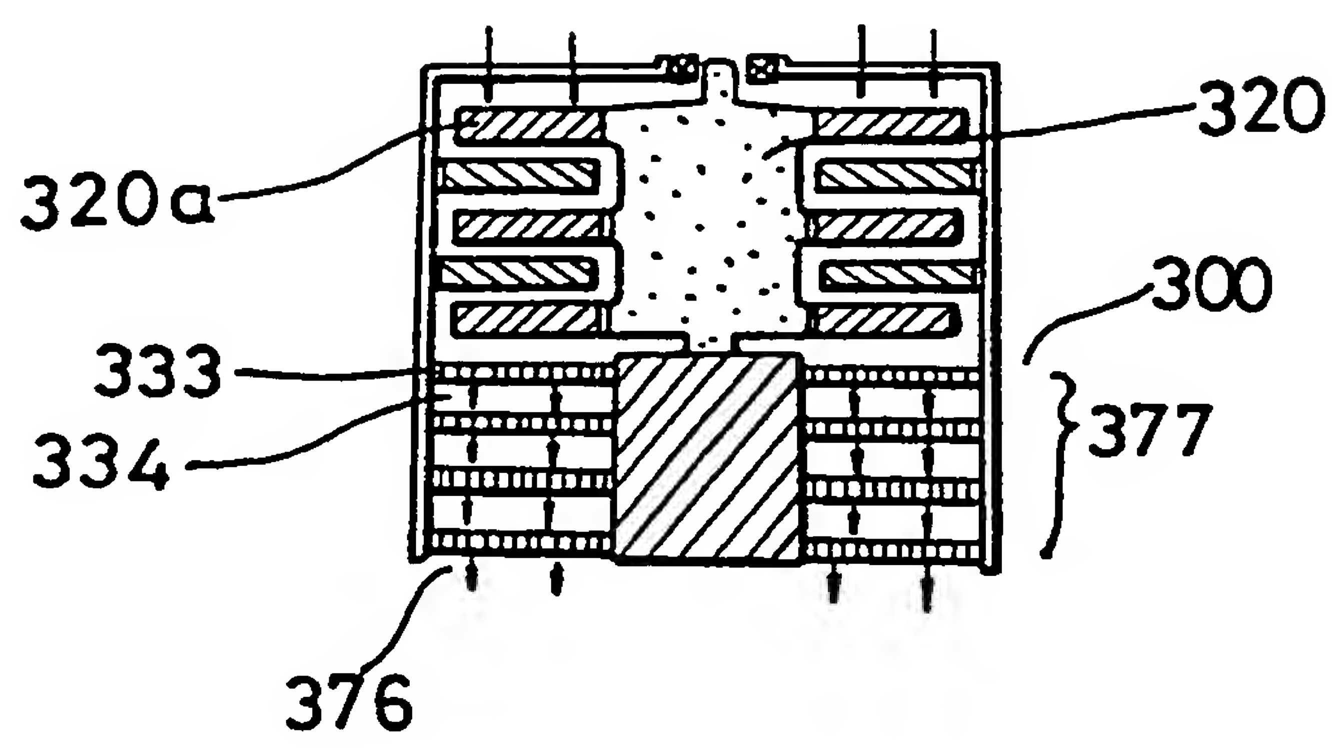

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 94/00015

A. CLASSIFICATION OF SUBJECT MATTER

IPC^5: F 02 C 6/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC^5: F 02 C 1/04, 1/05, 1/10, 6/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 2 172 910 (KELLER) 12 September 1939 (12.09.39), totality, especially fig.1.	1-3,5
A	US, A, 2 392 623 (TRAUPEL) 08 January 1946 (08.01.46), totality.	1,2,5
A	US, A, 2 820 348 (SAUTER) 21 January 1958 (21.01.58), totality.	1,2,5

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Date of the actual completion of the international search	Date of mailing of the international search report
09 May 1994 (09.05.94)	10 June 1994 (10.06.94)

Name and mailing address of the ISA/ AT	Authorized officer
AUSTRIAN PATENT OFFICE Kohlmarkt 8-10 A-1014 Vienna Facsimile No. 1/53424/535	Pippan e.h. Telephone No. 1/53424/359

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR 94/00015

Im Recherchenbericht angeführtes Patentdokument Patent document cited in search report Document de brevet cité dans le rapport de recherche	Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
US A 2172910		keine - none - rien	
US A 2392623		keine - none - rien	
US A 2820348		keine - none - rien	

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